The Journal of the American Medical Association

Published under the Auspices of the Board of Trustees

VOLUME LIII CHICAGO, ILLINOIS, OCTOBER 30, 1909 NUMBER 18

Original Articles

THE PRESENT STATUS OF THE SERUM THERAPY OF EPIDEMIC CEREBRO-SPINAL MENINGITIS *

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My intention is to present a very brief statement of the status of the serum treatment of epidemic meningitis. It is now about three years since the serum was first used therapeutically in this country. Gradually its employment has extended until now it is being used in Great Britain, France and Germany, as well as in the United States and Canada. Indeed, the Rockefeller Institute has sent supplies to India and to Jerusalem, but, as no reports have been received from these distant places, they will not be further considered at present.

At the time of the first employment of the serum in this country the epidemic of meningitis had already receded in the East, and, although the disease spread westward even beyond the Rocky Mountains and was often very severe and fatal, yet the number of cases arising or being recognized in any one community was not large. I, therefore, view the test made of the serum in America as having coincided with the period of recession of the epidemic.

At the period of the first employment of our serum in Belfast and Edinburgh the epidemic was at its height; that is to say, it had reached its maximum development, from which it was tending to recede rather than to extend. All the evidence at hand shows that the disease at that time had not diminished in virulence and fatality, but the number of cases appearing was in a given time less than before.

In Germany, also, the epidemic was virtually at an end when the serum was received. In France, on the other hand, the serum was available at the beginning of the outbreak of the epidemic which is now prevailing in Paris and the provinces. To the fortunate circumstance that Professor Calmette, on his return from the International Congress on Tuberculosis, carried with him to Lille a considerable quantity of the serum is to be ascribed its prompt employment. Subsequently the Rockefeller Institute sent large supplies to him, to Professor Netter and to Professor Roux. The reports of the serum treatment now appearing in French medical journals are based chiefly on the employment of the serum prepared at the Rockefeller Institute.

If, therefore, the decision of the value of the serum treatment was properly withheld until the opportunity arose to subject it to a test at the beginning of a severe epidemic, when the fatality is commonly at its height, this opportunity has now arrived in France. The outlook is further promising for a comparative study of cases of epidemic meningitis treated with the serum and in other ways. While the serum is being employed widely, apparently, in Paris and in the intense way that experience has indicated to be the best, namely, by successive injections of relatively large doses, in the provinces it is being less generally employed and it has been found difficult to have the intense method carried out by the provincial practitioners. When the reports are all in and the figures have been collected we may expect, therefore, valuable information on the value of the serum.

In the meantime, I can report to you that the excellent results obtained from the serum in America and Great Britain are being repeated in France. There have already been published reports covering 100 or more cases of the disease treated with the serum in which the mortality will probably be less than 25 per cent. On the other hand, a smaller number of cases thus far reported treated by other methods have given a far greater mortality and one approaching 80 per cent. Moreover, the phenomena of diminution in severity of the symptoms and reduction of the period of infection and convalescence have been observed there as elsewhere.

We may, then, consider fairly, I think, that the serum treatment has now been subjected to test under a variety of conditions, some of which were as severe as probably ever occur. And yet I should still advise caution in concluding that the case has been proved for the serum. The total number of reports of cases of epidemic meningitis treated with the serum prepared at the Rockefeller Institute which I have collected is under one thousand, and it obviously will take a larger number than that to establish its value. I wish now to present a tabulation which has recently been prepared based on 712 cases of the disease in which the bacteriologic diagnosis was made and the serum treatment used. In the first table the cases are subdivided according to certain age periods, and in the second the total cases of each age period are further subdivided according as the serum was injected in the three arbitrarily chosen periods of duration of the disease.

TABLE 1.—CASES OF EPIDEMIC CEREBROSPINAL MENINGITIS TREATED WITH THE ANTIMENINGITIS SERUM

CASES ANALYZED ACCORDING TO AGE GROUPS

Age years.	Total no. cases.	Recovered.	Died.	% Mortality.
1-2	104	60	44	42.3
2-5	112	82	30	26.7
5-10	113	95	18	15.9
10-15	101	73	28	27.7
15-20	107	72	35	32.7
20+	175	106	69	39.4
Total, all ages	712	488	224	31.4

Table 1 brings out several points of interest. The highest mortality is shown to have occurred in the first

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

two years of life. But contrary to the rule under the older forms of treatment in which the mortality was 90 per cent., or over, in this series it was 42.3 per cent. The second age period is from 2 to 5 years, in which the mortality was 26.7 per cent. The third age period embraces children from 5 to 10 years of age and gave the lowest mortality of all, namely, 15.9 per cent. The next period extends from 10 to 15 years and gave a mortality of 27.7 per cent. The next period of from 15 to 20 years showed a considerable rise in mortality, equaling 32.7 per cent., and the last period, embracing the cases of 20 years and over, gave a mortality of 39.4 per cent. The average mortality in all the age periods was 31.4 per cent.

The time allowed me is insufficient to enable me to enter into a detailed discussion of the figures. It is my intention, however, to consider them in some detail in the near future. A point of importance and one to which Dr. Jobling and I have already referred is the importance of experience with the serum in securing the best results from it. If the separate large series of cases treated by individual observers are analyzed, the great discrepancy in the results as between children over 2 years of age, young adults and adults past 20 years are not encountered.

TABLE 2.—CASES OF EPIDEMIC CEREBROSPINAL MENINGITIS TREATED WITH THE ANTIMENINGITIS SERUM

CASES ANALYZED ACCORDING TO DAY OF INJECTION

	Period of Injection—Day.								
	1st-3rd			4th-7th			Later than 7th		
Ages. Yrs.	Rec.	Died.	%	Rec.	Died.	%	Rec.	Died.	%
1-2	16	1	5.8	22	10	31.2	22	33	60.
2-5	24	6	20.	40	12	23.	18	12	40.
5-10	43	8	15.6	35	6	14.6	17	4	19.
10-15	36	8	19.	23	9	28.1	14	11	40.
15-20	25	17	40.4	25	8	24.2	22	10	31.2
20+	36	21	36.8	34	24	41.3	36	24	40.
Totals . .	180	61	25.3	179	69	27.8	129	94	42.1

Table 2 is instructive in bringing out the importance of early injections of the serum. The results in the first two years of life are especially noteworthy. The extraordinary figures given under the first period of injection, namely, in the first three days of the disease, can hardly be maintained. But the influence of period of injection is shown by the rapid rise in mortality in the subsequent two periods. The rule of the effects of early injection is preserved in the age periods up to the period of from 15 to 20 years, when it disappears. The discrepancy occurring in the two highest age periods cannot be wholly accounted for at present. The explanations which suggest themselves are that among older individuals there tends to be a large number of very severe, rapidly fatal or fulminating cases of the disease, or that older persons are less subject to the beneficial action of the serum. As regards the actual proposition, it may be stated that adults not infrequently respond promptly to the serum injections by abrupt termination of the disease or ameliorated symptoms and pathologic conditions.

The total figures do not, however, fail to indicate that the early injections are more effective than the later ones, as is shown by the percentage mortality in the first-to-third-day period of 25.3, in the fourth-to-seventh-day period of 27.8, and the period later than the seventh day of 42.1.

There is one consideration which I should like to touch on. The study of certain groups of cases of epidemic meningitis, coming under one observer, indicates that the diagnosis can sometimes be made before the usual symptoms of meningeal irritation appear or are recognizable. The cerebrospinal fluid removed by exploratory lumbar puncture has been, in these cases, sometimes clear and sometimes turbid and contained more or less polynuclear leucocytes and always *Diplococcus intracellularis*. The serum being injected immediately, these cases almost invariably were abruptly terminated or ran relatively a mild course. Attention having been drawn to the cases as being possibly examples of epidemic meningitis because of the similarity of the prodromal symptoms to those of other cases diagnosed later after the signs of meningeal irritation were plain, they ran a short and mild course after the early administration of the serum, while the others, which served to direct the attention, having been injected later when the infection and inflammation were well established, assumed a far more severe and protracted form.

Rockefeller Institute for Medical Research.

ABSTRACT OF DISCUSSION

DR. THOMAS MORGAN ROTCH, Boston: In my wards at the Children's Hospital during the last ten years, I have had on an average twenty of these cases each year. The children treated were in the first twelve years of life and I have carried out a different form of treatment during each of the past six years. During 1899, 1900, 1901 and 1902 no special treatment was employed and the mortality varied from 60 to 80

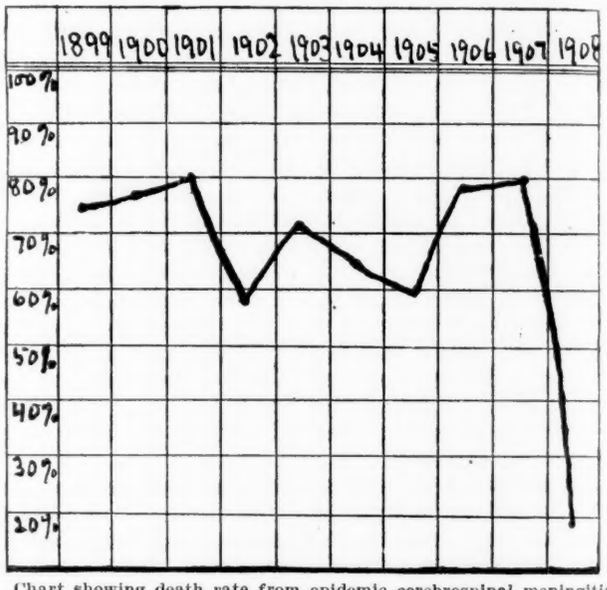

Chart showing death rate from epidemic cerebrospinal meningitis at the Children's Hospital, Boston, from 1899 to 1908.

per cent. During 1903, 1904 and 1905 the treatment was by repeated lumbar punctures and the mortality continued from 60 to over 70 per cent. Although the lumbar punctures produced no notable change in the percentage of deaths yet a certain temporary amelioration was noticed at times. During 1906, all the children were treated with diphtheria antitoxin, the doses varying from 115,000 to 144,000 units according to the age of the child. An analysis of these cases showed no especially favorable results, the mortality being about 80 per cent. During 1907, in connection with my work on the opsonic index the treatment was with the vaccines and the mortality still remained up to about 80 per cent. In all the nine years from 1899 to 1907 the mortality varied from 60 to 80 per cent.

From Nov. 1, 1907, to Nov. 1, 1908, the Flexner serum was employed and the mortality immediately fell from 80 to 19 per cent. This lower rate of mortality has varied a little since Nov. 1, 1908, but has never gone above 25 per cent.

The technic of the serum treatment in these 74 cases has been carried out by Dr. Charles Hunter Dunn. The amount of serum given varied according to the case but from 30 to 45 c.c. at a dose was found to be safe, given daily for at least four days. It is seldom that too much serum is given. In one patient, a small baby, symptoms of cyanosis, irregular respira-

tion and collapse occurred but the symptoms soon passed off and in the Dunn series only one other child was affected and this not seriously.

The mistake which is most likely to be made is the giving of too little rather than too much. It is also a mistake to stop repeating the dose until grave symptoms return. The serum should be repeated at least once a day and in grave cases oftener until not only all symptoms have disappeared, but until the organisms are no longer found in the spinal fluid. Reports as to the results do not give a fair idea of the value of the serum treatment unless the technic is carried out in the most perfected way. In this series of 74 cases the technic was carried out with the greatest precision with the method approved by Flexner.

The serum treatment should not be mistrusted or given up because certain patients do not respond to it. There are two reasons why some individuals do not respond to the serum: 1. Because in some cases it is probable that the serum can not reach certain parts of the brain infected. For instance, if by the inflammatory process brought about by the disease the foramen of Magendie has been closed the organisms may still be active while enclosed in the ventricles where the serum can not reach them or in like manner perhaps in some remote cerebral sulcus. 2. It has not been proved that there are not a number of strains of *Diplococcus intracellularis*, some of which may be resistant to the serum.

In those cases in which an individual does not respond to the serum, cultures from the spinal fluid should at once be sent to the Rockefeller Institute in order that Dr. Flexner should be enabled to investigate this possibility and perhaps later be able to increase the polyvalent property of the serum by including them in immunizing his horses. Analogous to these characteristics of the *Diplococcus intracellularis* is the well-known efficiency of certain strains of the lactic acid bacillus and the uselessness of others on certain fermental saprophytes in the intestine. The truth of these observations has been exemplified in Dunn's clinical work.

DR. PHILIP KING BROWN, San Francisco: Dr. Rotch's statement regarding the care of these patients in hospitals makes me wish to report a brief experience with the treatment of these cases in country towns in California where the disease seems to be endemic. It appears in epidemic form occasionally in small isolated communities. I wish especially to speak of this because of the remarkable results obtained in the use of the serum by the country practitioners and they should be given the credit of the work. I can not allow this opportunity to pass without speaking of it because of its bearing on the general use of the serum which I believe is bound to come. In all but one group of cases the serum was administered by the physician to whom I gave it, after I had made the initial injection. The most striking results occurred in one small town where eleven patients died before the serum was used. Then in a twelfth doubtful case the child recovered. The deaths occurred in periods of from five hours to four days after the onset of the initial symptoms. After the introduction of the serum, three patients promptly recovered. The fourth case died because the supply of serum gave out. A fifth patient from a distant place, ill two weeks before the serum was tried, recovered after the use of a number of doses of the serum. In a number of localities where I have gone to administer the first dose of the serum, I left a supply to be used by the local physician in the further care of patients and in subsequent cases that might arise. The best results obtained in California were obtained by the country doctors. In one late case the patient was deaf and nearly blind when the serum was begun; the sight returned to normal, but the hearing was not recovered. In another case the patient was almost blind before the use of the serum, but the sight was subsequently regained. Strange to say, the results in San Francisco were not so good as in the country towns. I did the work myself and did the best I knew how, but still I was not able to obtain the results obtained by the men in the country. Generally speaking, this seems to have been due to the late use of the serum, to complications and to the very bad hygienic surroundings in the homes of several of the patients. In no case, however, did I have to contend with the difficulties and disadvantages hygienically and as regards assistance in carrying out the treatment that attended all the cases I saw in the country towns and still my results were not as good as the country physicians'.

DR. WILLIAM LITTERER, Nashville, Tenn.: There has just been an epidemic of cerebrospinal meningitis in Nashville. The number of cases was 20, which was confirmed by bacteriologic examinations. Dr. Flexner kindly furnished us all the serum that we needed. In the first three cases in which the serum was not used, the patients died promptly. Out of the seventeen remaining patients in whom the serum was used, only 7 died; 3 of those who died were practically moribund when the serum was injected. The serum acted like magic on 2 moribund patients. Leaving out the moribund patients, 4 out of the 14 died.

We were particularly struck with two cases in which the meningococci were found in fairly large numbers in the fluid. After the first injection of the serum the number had decreased materially and by the third injection cultures were absolutely negative and the spinal fluid perfectly clear, yet the patients complained of agonizing headaches which were the chief feature of these cases. One of the patients died on the eighth and the other on the sixth day of the disease. I am of the opinion that the meningococci had extended into the ventricles of the brain and that the serum could not reach them. I am further of the belief that possibly we could have saved the patients had we injected the serum into the ventricles of the brain.

DR. SIMON FLEXNER, New York: There are two symptoms which are likely to persist after the disease has entirely yielded to the treatment, namely, rigidity of the neck and the Kernig sign. Other things being favorable, they can be disregarded, and may persist even for several weeks, and gradually disappear. A second point I should like to refer to is that apparently certain strains of the diplococcus are more resistant to the destructive and inhibiting influence of the serum already mentioned. How to explain this I do not know. I had intended to collect some of these strains for a special study, but have had little success in securing them thus far. The cases have occurred often in distant and widely separated places, so that the cultures of the resistant diplococci have not survived the journey by mail to New York, and so far I have not succeeded in securing such resistant strains in New York. I trust to pursue this investigation in the future.

I am confident that the inflammatory exudate is sometimes formed in inaccessible parts of the meninges, or in deeper parts of the brain where the serum can not reach. Then in cases of hydrocephalus the obstruction at the base of the brain often prevents the serum from reaching the cerebral meninges and ventricles, where the exudate is contained. Cushing of Baltimore first carried out intraventricular injection of the serum in children in whom this obstruction existed, after trephining the skull; and in young children it is possible to make the injection through the anterior fontanelle, but up to the present time in no case of this kind, so far as I know, has the patient recovered. Whether better results will be obtained later can not of course be predicted, but in any event I think the operation justifiable, since these cases always terminate fatally.

Finally, I wish to express my deep sense of indebtedness to the large number of physicians, many of whom I have never met, for their hearty cooperation, which I appreciate very much, and without which this wide investigation could not have been made.

Fly Poison.—Formalin, used as a poison for flies, needs to be swallowed by the insect, hence the flies must be attracted to the poison by mixing with it an appetizing food and by spreading the mixture over a large surface. Honey has given poor results. The *Scientific American* says the best mixture is made with milk. It recommends a solution containing 15 per cent. of the formalin of commerce, 20 per cent. of milk, and 65 per cent. of water, placed in large flat vessels. Most of the dead flies fall, not within the vessels, but around them, sometimes at a great distance.

INDICANURIA AND ITS SIGNIFICANCE *

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PHILADELPHIA

Indicanuria is the presence in the urine of a perceptible quantity, more than a mere trace, of the indoxyl sulphate of potassium, of which the chemical formula is $C_8H_6NKSO_4$. It is derived from anaerobic bacterial putrefaction of proteids.

Indol is first produced, and, at the time of absorption, is converted into a soluble indoxyl, which, in the juices of the body, unites with a base, usually potassium, and is excreted in the urine as indoxyl sulphate of potassium. Normally, from 5 mg. to 20 mg. of this substance are excreted daily; abnormally, from 50 mg. to 150 mg.

Numerous tests, most of which I have examined, have been offered for the determination of the presence of indican. The solution of the neutral or basic subacetate of lead, commonly employed to clear the urine, is not without disadvantage. Sometimes it removes a portion of the indican; occasionally it renders the detection easy. As an oxidizing agent a 1 per cent. solution of potassium chlorate is to be preferred to the solution of chlorinated soda, because of the instability of the latter.

The test for indican which is advised is as follows:

To 10 c.c. of filtered urine add one drop of a 1 per cent. solution of potassium chlorate; then add 5 c.c. of chloroform, and lastly 10 c.c. of pure hydrochloric acid of a specific gravity of 1.19. Thorough mixing is obtained by repeatedly and slowly pouring from one test-tube to another. The indigo thus set free is dissolved in the chloroform, to which is imparted a blue color. The maximum coloration is secured in ten minutes. When large amounts of indican are present, more potassium chlorate will be required.

Clinically, a quantitative idea of the amount of indican present may be obtained by noting the depth of the blue color of the chloroform. Salkowski, Strauss and others have devised methods by which the quantity of indican may be estimated, but most clinicians employ the qualitative method. The presence of a faint bluish discoloration of the chloroform may be viewed as normal or as possessing no importance. If the urine contains iodid the chloroform will be colored violet, which color may be removed by adding three drops of a 5 per cent. solution of sodium thiosulphate. Certain observers have noted that indican is usually absent in normal children under five years of age. Indican may be constantly present in large, moderate or small quantities, or only occasionally present during certain hours of the day or certain days of the week or month. In order, therefore, that the presence of indicanuria be not overlooked it is necessary to obtain urine for examination at different times during the day or week, or under conditions produced by variations in food, exercise, or during the presence of one of the most marked symptoms of this affection, as for example, headache. Indican is often detected in the urine passed after supper (care being taken to instruct the patient to empty the bladder before beginning the meal) and may be absent at all other times. Occasionally it may be necessary to modify the articles of food composing the supper, so as to make it a test meal. The urine first passed on arising and retiring, as well as that taken from a twenty-four-hour specimen, should always be examined. Sometimes indican is observed only after the ingestion of certain articles of food, or combinations of food, which may be indigestible, unsuitable or in excess. It must always be remembered that, owing to an idiosyncrasy, certain patients suffer acute indigestion with marked toxic symptoms, when they partake of certain foods or combination of foods which may for others be digestible.

Clinically, indicanuria may be mild or severe, acute, chronic, or recurrent, and occurs as an independent affection or as a complication of other diseases. The severe forms of intestinal toxemia simulate cholera and may cause death in less than one week.

Indicanuria is significant of the absorption of the products of putrefaction, which putrefactive material is usually situated in the gastrointestinal tract, but under exceptional circumstances may be in other parts of the body. It is well known that during putrefaction, phenol, cresol, fatty acids and gases, and other substances are elaborated, in addition to indol, skatol or methyl indol. The test for indican is so simple and the test for other putrefactive products so difficult that gradually indican has assumed the position of an indicator of the absorption, not only of indoxyl, but in addition any one or any combination of the bodies produced by the decomposition of proteids.

Indicanuria may be absent when proteid decomposition is present if absorption is prevented, and it is conceivable that intestinal toxemia occurs in the absence of indicanuria.

Indol is a volatile aromatic substance of fecal odor, crystallizing in white glancing crystals, is practically insoluble, and as it passes through the mucous membrane it is converted into soluble indoxyl and is carried by the portal blood to the liver, where it becomes indoxyl sulphate and later the indoxyl sulphate of potassium. When indican appears in the general circulation it is excreted as such by the kidneys.

Jaffé states that the subcutaneous injection of indol is followed by the appearance in the urine of large quantities of conjugated indoxyl compound. Herter maintains that indol is only moderately toxic to man and that small doses may produce frontal headache, mental irritability, insomnia and mental confusion, and that the continual absorption of enough indol to yield a constant strong reaction of indican in the urine is capable of inducing symptoms of neurasthenia. Skatol is supposed to act as does indol.

Phenol is extremely poisonous, but phenol-sulphate is non-toxic. Phenol is usually coexistent with indican and is increased and decreased in like manner, the principal exception being in anemia and cachexia, in which indican is increased and phenol is decreased, and in hunger, in which phenol is increased and indican is decreased. Cresol is supposed to act as does phenol.

During proteid decomposition of fatty acids, such as formic, acetic and propionic, are formed, and also certain gases, such as carbon dioxid, hydrogen, marsh gas and sulphuretted hydrogen. These acids are probably but moderately toxic in the quantities in which they exist under ordinary conditions; but it must not be forgotten that small quantities of sulphuretted hydrogen are extremely poisonous. On one occasion I administered per rectum sulphuretted hydrogen, which produced simultaneously rapid, intermittent, weak pulse, collapse, delirium, and a slight odor of this gas in the breath. These symptoms vanished in a few moments.

It is not improbable that in certain cases unknown or undiscoverable toxalbumins are formed which may be peculiarly poisonous even in very small quantities. No

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

exact knowledge exists as to the precise manner in which the body protects itself from the poisonous compounds produced during proteid decomposition, but it is believed that such an influence is exerted by the cells of the liver and intestinal mucous membrane. Baumann was able to demonstrate that the liver contains a larger amount of ethereal sulphates than does the blood. Clinically, indicanuria occurs more readily when the hepatic function is disturbed than when this organ is normal. Indicanuria not infrequently exists without symptoms. Occasionally putrefactive bodies are produced that are but slightly toxic, and certain individuals possess an inherited or acquired immunity, while others are peculiarly susceptible to very small quantities of these bodies. As it is unsafe to assume, in the light of our present knowledge, that indicanuria produces no harm when symptoms are absent, prudence dictates the prevention of its formation.

The conditions which favor indicanuria are numerous and demand attention. Morbid conditions of the teeth, mouth, oropharynx, nose and sinuses connected therewith, in their relation to the production of indol, possess an importance which is far too little recognized. Not infrequently the buccal cavity contains much decomposing material, together with many micro-organisms, both fermentative and putrefactive. The odor often suggests decomposition and examination may reveal abscess of the gums, pyorrhea alveolaris, with soft, flabby, congested and contracted gums, forming numerous cavities, in which pus and food may be retained under conditions peculiarly favorable to decomposition. A similar condition may arise from the long-continued presence of food between the teeth, especially when there is irregular dentition or caries. Occasionally in the enlarged crypts of diseased tonsils decomposing cheesy material may be found and suppurative rhinitis or sinusitis is not uncommon. When such conditions of the oropharynx, nose or sinuses exist it is manifest that food, even during mastication and before deglutition, may become infected and putrefaction begin.

Many causes favor the production of indol, such as simple excess of proteids from gormandizing; insufficient mastication or insalivation and too rapid eating; any condition paralyzing or lessening gastric, intestinal or colonic peristalsis, or retarding the onward progress of the gastrointestinal contents or interfering with the normal secretions of the stomach, intestines, pancreas or liver, etc. It is evident, therefore, that indicanuria is to be expected in gastrointestinal or colonic atony or paralysis as well as in relaxation of the abdominal wall, producing gastroptosis or enteroptosis. Again, hernia, ileus, appendicitis, local or general, acute or chronic peritonitis and pyloric or intestinal stenosis, constitute conditions favoring the growth of putrefactive bacteria.

The absence, diminution or excess of hydrochloric acid, by producing indigestion and fermentation, favor the production of indol.

Indicanuria has been observed in diarrhea, in association with indigestion, gastritis, enteritis, colitis, ulceration or obstruction of the small or large intestines, cholera, dysentery, Addison's disease and inanition. The deep importance of the recognition of indicanuria as a complication in typhoid fever I emphasized in 1904, in a communication read before the Pennsylvania State Medical Society.

Constipation may exist without indicanuria, but is exceptional. Normal feces, the product of normal digestion in a normal individual, may remain in the colon an undue length of time without toxicity. Acute attacks of indigestion with furred tongue, offensive breath, constipation, mental and physical depression and headache, familiarly known as "biliousness" or congestion of the liver, are usually associated with indicanuria, and, in many instances, are examples of acute toxemia due to absorption of products of decomposition of the intestinal contents. It is more than probable that miner attacks of toxicity occur without well-marked symptoms. Recurring attacks of simple hepatic congestion, due to toxic poisoning, interfere with the normal excretion of bile, which in turn incites intestinal indigestion, fermentation and putrefaction, thus preparing the way for a similar attack on slighter provocation. In the course of months a chronic congestion of the liver is produced, aggravated by recurrent attacks of acute congestion, and thus, if the toxemia be moderate, in the course of years the clinical picture of hepatic cirrhosis may be developed.

Excessive formation of indol has been observed in various morbid states of the liver, with or without jaundice, in diseases of the pancreas, as well as in suppurative and gangrenous conditions of other parts of the body, as, for example, in empyema, gangrene or abscess of the lung and perityphlitic abscess; and has also been observed after the administration of turpentine or creosote.

Having thus far treated of indican as an indicator of toxemia, let us now turn to the various effects of toxemia.

Acute attacks of toxemia are frequently associated with dark-colored urine showing hyperacidity, high specific gravity, indicanuria and skatoluria, or moderate albuminuria and choluria, cylindroids and a few hyaline tube casts. As the toxemia increases in frequency and intensity, or becomes chronic with exacerbations, the albuminuria and cylindruria increase, and eventually, in consequence of long-continued irritation of the kidneys produced by the excretion of chemical irritants, resulting from intestinal putrefaction, chronic interstitial and parenchymatous nephritis develop. In the early stages, under appropriate treatment, these abnormal constituents in the urine disappear; again, in moderately severe cases, three, four or five years may elapse before this result is obtained.

The circulation in the blood of the derivatives of putrefaction absorbed from the intestines produces varying degrees of anemia, which, as a rule, is of the chlorotic type, and in long-standing and severe cases this anemia may become so extreme as closely to simulate the clinical and blood picture of pernicious anemia. The poison causes a rapid loss of hemoglobin and a slow loss of erythrocytes, but does not materially interfere with the leucocytes.

The circulation in the blood of these toxic substances at irregular intervals over a period of many years may cause the development of arteriosclerosis from direct action on the walls of the vessels. In a number of cases the conclusion was irresistible that this was the cause of arteriosclerosis.

The relationship of indicanuria to the nervous system is varied and most interesting. Several cases of neuroretinitis, associated with persistent and marked indicanuria, have gradually subsided and then disappeared, when this chronic poisoning was prevented; and in like manner, neuralgia or inflammation of other nerves have been produced. Occasionally pains in various parts of the body, due to intestinal toxemia, have been erroneously ascribed to rheumatism or gout. One of the common symptoms of acute or chronic intestinal toxemia is headache, either mild or severe, usually frontal, although

it may be in the vertex or occiput. The duration varies from a few hours to a few days and may occur at intervals of two or three days, or as many weeks or months. An intermittent headache from this cause may continue unrecognized for months, and in one instance has been endured for seventeen years. Intestinal toxemia is as frequent a cause of headache as errors of refraction. Several examples of persistent insomnia, chiefly due to putrefactive poisoning, have come under my observation during the past decade. Certain individuals are peculiarly susceptible to minute quantities of putrefactive poison; this peculiarity has been especially observed among neurasthenics, in this respect resembling the well-known idiosyncrasy to alkaloids, such as atropin, etc. Chronic intestinal toxemia may induce or complicate cases of neurasthenia. It is not improbable that one of the reasons for the favorable results obtained from the use of a milk diet in treatment of neurasthenia is the incidental removal of an unrecognized toxemia.

Again, intestinal toxemia is a common complication of the various forms of mental diseases as seen at the Philadelphia Hospital, and occasionally it is the cause or complication of certain cases of epileptiform convulsions. The favorable course of many cases of pulmonary tuberculosis is interrupted by attacks of intestinal toxemia, and has been more frequently observed since the treatment of tuberculosis by large quantities of milk and eggs has become more general. The diagnosis of this complication is absolutely necessary for success in treatment of tuberculosis where a specific diet, suitable for the individual, should be substituted for the one in more general use. Putrefactive poisoning aggravates catarrhal inflammations of the respiratory tract and the recognition and removal of this complication is frequently followed by a marked amelioration of symptoms, and in like manner certain cases of bronchial asthma are greatly benefited. Eczema, pruritus, acne rosacea, and malodorous perspiration and breath have been observed in association with indicanuria.

Intestinal toxemia is a common disease in itself and a frequent complication of many diseases; its removal is very frequently followed by remarkable and prompt amelioration or disappearance of many distressing symptoms.

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ABSTRACT OF DISCUSSION

DR. HEINRICH STERN, New York: The pathologic significance of urinary indican, or rather indoxyl-sulphuric acid, has been grossly exaggerated. True, there ensues an increased production of indoxyl compounds in cholera, Addison's disease, obstructive affections of the small intestines, etc., but this does not justify us in ascribing to them toxic qualities, and to maintain that they stand at the foundation of a number of pathologic conditions. Of course, the indoxyl compounds have no direct relationship to so-called pyorrhea alveolaris, they are neither its cause nor its result. The indoxyl compounds are normal urinary constituents and we find them in small amounts in every human urine, except in that of new-born and breast-fed infants. Indoxyl is even contained in the renal secretion of infants who obtain besides human milk also some cow's milk and even in these instances, it occurs in the absence of any digestive disturbances whatsoever. Increased amounts of indoxyl as found in the urine allow of but one interpretation, namely, that we are confronted with some form of tryptic perversion. Some observers hold that the trypsin of the pancreatic secretion induces or favors the production of indoxyl. Their contention is based on two facts, viz.: the tryptic quality as regards decomposition of the ingested proteid material, and the decrease of urinary indoxyl in case of an occlusion of the pancreatic duct. Clinical experiments and observations, however, have demonstrated to my satisfaction that in the majority of instances of so-called indicanuria, we have to deal with an insufficiency of tryptic function and, consequently, with abnormal putrefactive processes and the augmentation of the intestinal bacterial flora. While it is, of course, possible that an indicanuria may occur with a process like pyorrhea alveolaris while it is even possible, although it has never been proved, that perverse intestinal putrefaction may stand in some more or less remote relationship to pyorrhea alveolaris, we have no business to maintain that one of the accidental products of such putrefaction, the indoxyl, is the true causative agent of this or of any other affection. We must not forget that pyorrhea alveolaris is an exceedingly progressive, chronic affection, and that indicanuria, that is the excessive excretion of indoxyl compounds, is essentially an acute, or at least, a limited occurrence. Is it possible that the rather ephemeral indicanuria will give occasion to the enduring pyorrhea? The same contention holds good with all other affections which, at one time or another, have been accused of having excessive excretion of indoxyl as their causative factor. The indoxyl compounds are not toxic in themselves, so far as we know, they are of more or less accidental occurrence, and may point to an occlusion of the small intestine with a decrease of tryptic function and an increase of bacterial activity. Everything else belongs to the realm of speculation. Moreover, I wish to direct attention to the fact that indoxyl occurs not only in the urine of carniverous but also in that of herbiverous animals. As a matter of fact, it is present in the urine of some of the herbivora in much larger quantities than in any of the carnivora. It occurrs in enormous amounts in the urine of the horse, from which we obtain it for experimental purposes. It may also be prepared from the urine of the dog, but, in my experience it is purer when it is derived from horse's urine. In the latter, it is present in larger proportion than in that of cattle. The reason for this seems to be the large cecum of the horse which permits additional and more complete disintegration of the ingested material. Indoxyl does not occur in the urine of the rabbit, as a general rule, but I have found it therein in the presence of artificially induced obstipation. While indoxyl appears in the urine in larger amounts after a diet rich in animal food, it never attains pathologically that proportion in the human being which is normally present in the urine of the horse. This evinces, I dare say, that animal food and the ensuing putrefactive processes, in herbivorous animals at least, are not the only source of indoxyl compounds and that vegetable ingesta and fermentative processes may give rise to indican production. I have employed for some time the potassium chlorate-chloroform-hydrochloric acid test advocated by Dr. Daland for clinical work.

DR. HENRY R. HARROWER, Chicago: The subject under discussion appears to be unquestionably the entering wedge to even more important and vital studies. Dr. Daland has rightly emphasized the significance of indicanuria and its importance as an etiologic factor in disease. A point which I wish to emphasize, however, is the close relation between indicanuria and diseases of the mouth and teeth. As a matter of fact, mouth symptoms are among the first manifestations of those disturbances due to or associated with indicanuria and its causes. Acid saliva, pyorrhea and affections of the alveolar process are almost invariably accompanied by indicanuria. The pioneer work in this particular line of Dr. Eugene S. Talbot of Chicago proved this assertion. Acidemia is also frequently found associated with indicanuria; I do not refer to the acidosis of diabetes. In a series of several hundred uranalyses the average acidity was increased considerably, varying from 10° to 275°, the normal degree of acidity being from 30° to 40°. Each degree represents the amount of N/10 sodium hydrate required to neutralize 100 c.c. of urine. The number of acid units (and, by the way, this is an important factor recently suggested by Dr. A. L. Benedict of Buffalo) varied from about 8,000 to 350,000 in twenty-four hours, 40,000 being approximately the normal. In 83 per cent. of these cases indican was present to a greater or less extent, those cases showing an excess of indican always giving a marked increase in acidity. A number of cases showing

indigo red instead of indigo blue all evidenced a tremendous acidity. In 81 per cent. of this series the urea index was diminished an average of one-half; in one case in which the acidity reached 220 and indican was abundant the percentage of urea was only 0.4 (2.8 gm. in twenty-four hours). About one-third of these cases showed casts. Summing up these facts it will be seen that indicanuria is practically always associated with an excessive elimination of acid substances in the urine and a marked decrease in the amount of urea, two very important findings. I believe that the condition of acidemia or diminished blood alkalinity is of far greater importance than present medical opinion or the text-books would lead one to believe; that it is a probable cause of many obscure diseases and consequently deserves more extended attention and thorough investigation. Further, the reduction of this condition of excessive acidity by the judicious use of suitable remedies brings with it a speedy and decided amelioration of many indefinable ills.

DR. RICHARD C. CABOT, Boston: After using the test for indican for a long time in different clinical conditions, I have given it up and I would advise others to give it up. We sometimes get an increase of indican in the urine in pathologic conditions, of course; but in such case the nature of the pathologic condition present is much more obviously indicated from the clinical side. Indicanuria gives us no diagnostic or therapeutic indication. What was the relation of indicanuria and indican production to the diseases Dr. Daland mentioned?

DR. ALLEN A. JONES, Buffalo: I think that Dr. Daland has mentioned two points in particular that are worthy of our consideration. The first is that normally from 25 to 50 grams of indican are excreted in twenty-four hours; whereas, abnormally from 50 to 150 are excreted. So I believe that it should be routine work to estimate the amount of indican excreted in twenty-four hours. The indican test has been employed in my laboratory for many years, using the qualitative but not the quantitative test. It may be that by using the quantitative test one may arrive at some definie clinical conclusions. So far as the qualitative test is concerned, very little attention is paid to it at the present time in a routine way except in the laboratories. Years ago an attempt was made to associate indicanuria with a definite condition of the stomach, a diminution of the amount of hydrochloric acid in the gastric contents; in my series of 160 cases, I could not prove any definite relation between the amount of secretion of hydrochloric acid and indicanuria, which was found with and without any diminution in the amount of hydrochloric acid in the gastric contents.

So far as can be gained from Dr. Daland's paper, we can come to but one general conclusion, *i. e.*, indicanuria is merely an evidence or symptom of a toxemia, and this toxemia may come from a variety of conditions. It is not associated with any definite pathologic condition in the body, or in other words, any definite disease.

DR. ANTHONY BASSLER, New York: My experience is confirmatory of Dr. Jones' statement concerning the relationship existing between states of gastric juice secretion and indicanuria. It is generally taught that the regular association with indicanuria is a low state of gastric juice secretion, but this is not always so. A marked indicanuria may exist with excess stomach secretion. Clinically speaking, I do not think that the indicanuric conditions are only produced by hypochlorhydria and anachlorhydria, but believe that the intestinal conditions called indicanuria often cause depression of the secretory apparatus of the stomach, for by the direct treatment of the intestinal condition its effects on the stomach are often mitigated or removed. I regret that Dr. Daland did not have time to describe his test, and I wish he would add whether the use of the solution he advocates will also give the uroresin reaction, which to me is just as important as indican.

DR. JUDSON DALAND, Philadelphia: I think that Dr. Jones' understanding of indicanuria is the correct one, namely that it is simply an indicator of the absorption of putrefactive substances, a certain toxemia. Much benefit is derived from the study of the presence of indican in the urine. To me, at least, it has been of great service. Indicanuria serves to aggravate certain conditions. To show this, I recall two cases of retinitis under the care of a skilled ophthalmologist, who found that the condition was toxic. Indican was present in the urine in large amounts. By successfully treating the indicanuria the patient made a good and rapid recovery from his retinitis. We can always take exceptions to clinical evidences; but clinical evidence is necessary because we are not in a position to offer experimental evidence. I have had the opportunity of watching the renal secretions under many conditions in association with indicanuria, and I have observed its disappearance followed by a clearing up of the evidences which make some believe there is an involvement of the kidney. I desire to repeat that indican itself is not a substance capable of producing any material interference with health; but in those conditions in which there is the continued presence of a large amount of indican I have found associated evidences of disorders of various parts of the body which, in my opinion, were due to the formation in the intestine of toxic substances of different kinds which I am unable to differentiate. Therefore, I use this test as a rough clinical method; when indicanuria is present, by causing the removal of the indican from the urine we improve the patient very materially. This is merely a clinical contribution. I was especially glad to hear Dr. Harrower speak of the condition of acidemia or diminished blood alkalinity.

CARDIAC AND VASCULAR COMPLICATIONS IN PNEUMONIA

WITH SPECIAL REFERENCE TO TREATMENT *

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If we glance at the etiologic conceptions which formerly existed in connection with lobar pneumonia—and unless otherwise stated lobar pneumonia is the only form of pneumonia referred to in this paper—it will not be difficult to see why the heart was neglected. Those who believed in a humoral origin of the disease assumed that the only thing requisite for the cure of pneumonia was blood-letting, and that it was not necessary to look to the heart. Indeed, with Bouillaud's formula of bleeding (1830), *coup sur coup* and withdrawing twelve to sixteen ounces at a time, the heart was literally neglected. Then came a time when bleeding was restricted to cases which presented some indication for it, although, as Trousseau says, most physicians and all the laity could not conceive of pneumonia patients recovering without it. The indication was not stated precisely, but more or less vaguely as, with Trousseau, general congestion. About the same time (1847) Skoda and Dietl (1847) pointed out the dangers, as well as the inutility, of the procedure in any case of pneumonia and substituted for it that which has been called the expectant treatment, or better, nihilistic treatment, which, however, was followed by more recoveries than had ever followed bleeding.

It was not until 1874, when von Jürgensen wrote his remarkable article,[1] that the heart was brought into prominence; he says: "The danger to life which croupous pneumonia produces in the patient first threatens the heart. Pneumonia death is caused by cardiac insufficiency." In this article, which in some ways is almost prophetic, he says, "Sine pulsu nulla therapia," thus differentiating pneumonia from typhoid fever, in which there is no treatment without the thermometer. Furthermore, among many other things now accepted,

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

1. In von Ziemmsen's Handbuch der speciellen Pathologie und Therapie, vol. v, part 2.

von Jürgensen recommends the fresh-air treatment, which has been so successfully rediscovered within the last few years.

About ten years after this (1884-5) A. Fraenkel discovered the cause of lobar pneumonia, namely, Fraenkel's diplococcus, the *micrococcus lanceolatus,* or as Fraenkel himself calls it, the pneumococcus. From this time our expectations of increased knowledge were fulfilled. For clinical and therapeutic purposes many things have been added, for the study of blood-vessel conditions the most important is found in Romberg and Pässler's contribution [2] on the effect of pneumonia infection on the general circulation. These two observers showed that the toxic albuminoid which is produced during metabolic activity of the pneumococcus paralyzes the vasomotor center in the medulla oblongata, and Pässler, in a subsequent communication[3] states that this is the most common cause of death in pneumonia, in as far as the circulatory apparatus alone is concerned. The objections to the complete acceptance of this view were that there was the incomplete accordance of experimental results and clinical observation, and that the condition had not been identified in man. At the present day the first may be considered as having been satisfactorily settled; for the second, although identification is fairly complete, much more must be done in order that the clinical picture may be accepted by the profession at large. I do not hesitate to state that with a healthy heart vasomotor paralysis is the most common cause of pneumonia death, in so far as the cardiovascular apparatus is concerned, and it goes without saying that this mode of death may occur irrespective of health or disease of the heart. As a matter of fact, there is still some doubt whether, with sufficient infection to produce this vasomotor condition, the heart muscle is not always affected and whether the former or the latter develops first.

Long ago it has been shown in animals that, on section of the splanchnic nerve, an enormous quantity of blood accumulates in the intestine, which is followed by intense anemia in other organs, especially in the central nervous system, which may cause death. The splanchnic nerve is the vasomotor nerve of the intestines, and its section causes paralysis of vasomotor function and enormous dilatation of blood-vessels. In paralyzing the vasomotor center with the pneumococcus the same result follows in man. In brief, in man there is first, dilatation of blood-vessels in the splanchnic area; the blood-pressure, which sooner or later is normally low in pneumonia, sinks; the heart, which is supplied by an insufficient quantity of blood, which is gradually becoming stationary in the affected area, continues to draw blood from other places, the liver, the skin, the muscles and central nervous system, and becomes more and more rapid and ineffectual, "bleeding itself into the splanchnic area," and finally stops. The intracardiac pressure is reduced so that the myocardium ceases to contract; moreover, the various cardiac and vasomotor centers become asphyxiated, and therefore paralyzed.

All this, as Pässler first pointed out, produces a characteristic clinical picture. My observation has led me to add to his description, so that it presents itself as follows: The first evidences are rapidity of heart and sinking of blood-pressure; with this, or shortly afterward, there comes tympanites; the patient then presents an exsanguinated appearance, with beginning evidences of collapse; the pulse becomes irregular, empty and so rapid that it cannot be counted; symptoms of cerebral anemia begin to appear—delirium, hallucinations, sometimes great restlessness; they gradually disappear to be superseded by stupor and coma; the collapse increases; the heart becomes more irregular; the heart sounds disappear, and the patient dies.

With such an appalling possibility staring us in the face in every case of pneumonia (for we are not in a condition to determine when the infection is sufficient to produce the condition described), it would seem natural to resort to means in order that its development may be prevented. In order to accomplish this purpose A. Fraenkel[4] recommends the administration of digitalis. He gives ¾ gm. a day for three or four days, maximum 12 gm. in all, in all cases which come under observation within the first three days of the disease. It is contraindicated in patients with organic disease of the heart, kidneys or blood-vessels, and he does not apply this mode of treatment in drinkers and patients over 50 years of age. His results seem to be satisfactory; the temperature sinks; the pulse does not become more rapid and the blood-pressure never diminishes. Theoretically there can be no objection to this mode of treatment, but my own experience with it has not convinced me that it is the best. In 1891 Petresco[5] of Bucharest published an article on the treatment of pneumonia with large doses of digitalis in which he recommends the administration daily of 4-8 gm. of digitalis infusion given in twenty-four hours, according to the severity of the case. In some cases he gave as much as 24 gm. in four to five days. As there was an epidemic of pneumonia in my wards at the time of the appearance of this publication, all the patients were put on this treatment. I failed to verify nearly all of his conclusions, even to the small detail that the pulse fell after one to three doses had been given. On the contrary, mortality was greater than before. All the evil effects that can be produced by digitalis were noted, and after three days of administration of the remedy such cumulative effects were produced as I shall hope never to see again.

The next remedy which I tried was the routine administration of strychnin; while I should not want to be without it in the acute infections, it does not prevent the vasomotor syndrome which is under consideration.

Because of the peculiar action of caffein, in stimulating the vasomotor center and its action on the heart, I have administered this drug for the last twelve years in a routine way. Caffein always increases blood-pressure, unless there is some organic lesion which in and of itself produces increased blood-pressure. Thus, in nephritis, when the pressure is abnormally high, it is doubtful if the pressure goes higher on administration of caffein, but the presence of this complication is, it seems to me, an additional reason for giving the drug.

In aortic sclerosis and splanchnic sclerosis caffein may be given with safety when the blood-pressure is below normal, or when it sinks. In all organic heart lesions it is also safe. So that the only contraindication for its use would be abnormally high blood-pressure, when there is danger of doing harm by the possibility of increasing it, a condition which may present itself in cases of cerebral arteriosclerosis, or in recent endocarditis. I have never seen any other effect on the heart than diminution in rate in pneumonia when the drug is given in proper doses. For prophylactic purposes it is not necessary to give more than 0.10

2. Romberg, E., and Pässler, H.: Experimentelle Untersuchungen über die allgemeine Pathologie der Kreislaufstörungen bei akuten Infectionskrankheiten, Deutsch. Arch. f. klin. Med., 1895, lxiv, pp. 652-763.

3. Pässler, E.: Zur Behandlung der fibrinösen Pneumonie, München. med. Wchnschr., 1901, xlviii, No. 8.

4. Fraenkel, A.: Spezielle Pathologie and Therapie der Lungenkrankheiten, 1904, ii, 372.

5. Petresco: Therap. Monatshefte, 1891, p. 121.

to 0.30 gm.—(gr. i ss to v) every four hours. When the symptoms of "bleeding into the splanchnic area" have developed it should be given hypodermically 0.20 gm. three or four times daily. I employ the double salts (preferably the caffein-sodiosalicylate because it is best made in this country), as they are more stable when dissolved in water, more soluble and less irritating when administered hypodermically than any of the other salts of caffein. On the whole, they do exactly what Fraenkel has claimed for digitalis; they reduce the pulse-rate, the fever may become reduced; they increase the blood-pressure; they reduce the mortality without being subjected to many limitations in administration and without producing the unpleasant effects of digitalis when given in proper dosage. Occasionally it occurs that patients become nervous and sleepless, which is remedied by reduction of dose.

Other preventive measures of great importance should also be considered. First among them I would place the fresh-air treatment, which reduces wear and tear, rendering all patients less liable to fatigue and which also lessens toxemia. Next to this, I would emphasize the necessity of treating sleeplessness from whatever cause it may arise; the continuance of wakefulness is very dangerous, both for the nervous system and for the heart, and as von Jürgensen says, "there are cases in which the whole therapeutic problem temporarily reduces itself to the production of sleep." Lastly, it may become necessary, in individual cases to reduce the temperature. I have purposely said "individual cases," as antithermic treatment is not necessary, as a rule. When the temperature produces damage it should be reduced, but only by such measures as do no harm, and especially do no harm to the heart.

The Nauheim or calcium chlorid baths, as recommended by P. K. Brown.[6] in vasomotor paresis in acute infectious diseases might be advantageously employed instead of the ordinary cool or cold bath, especially as a preventive measure. Besides these, all those other dietetic, hygienic and therapeutic measures and the proper treatment of other symptoms must be considered as acting prophylactically, notably those which may affect the central nervous system unfavorably.

When the symptom-complex has developed then most energetic measures should be adopted. In 1898 I was successful in arresting a case of splanchnic vasomotor paralysis, and in 1904, after having had a number of cases, two of which were in children, I published the method[7] which had been successful. It is as follows: Adrenalin is employed for the purpose of contracting the blood-vessels of the spanchnic area, for which, according to Abel, it has an elective affinity; hypodermoclysis or venous transfusion with large quantities of normal saline solution (0.90 per cent. Hamburger) for the prevention of asystole, one or two ice-bags on the abdomen which reduce the pulse, probably by stimulation of a splanchnic reflex. Adrenals were first recommended in pneumonia by E. A. Gray[8] in 1902. Henry L. Elsner[9] recommends adrenalin for vasomotor paralysis for precisely the same reason as stated above. Adrenalin may be given with the hypodermoclysis, 1 c.c. of a 1000 solution; the frequency of its application must depend on the symptoms, as its effects are transitory. This is one of the few conditions in which a physician should be "in constant attendance." According to the rate and rhythm of the pulse, which are entirely satisfactory indices, even without blood-pressure estimations in the onset, the drug should be administered every two to four hours. This cannot be kept up very long, so that I have found it necessary to give hypodermic injections of caffein to take the place of the hypodermoclysis, which usually results in giving three or four saline and adrenalin injections a day and four doses of caffein. In the first twenty-four to thirty-six hours most reliance should be placed on hypodermoclysis; with the added adrenalin gradually the caffein is allowed to take its place. The ice-bags are valuable adjuncts; in one patient, without any other treatment, I succeeded in reducing the pulse-rate from 140 to 60 per minute. As soon as such an effect is produced, or when tympanites disappears, the ice-bags should be discontinued, to be reapplied when the pulse goes up or the tympanites reappears. This mode of treatment, applied in all kinds of vasomotor paralysis, has given me about 50 per cent. recoveries. Esser[10] has employed large doses of camphor hypodermically to increase blood-pressure; in one case he gave 23 gm. (345 grains) in four days. He lost 2 cases out of 13—but his record is not perfectly clear, as 2 cases, at least, belonged to another type of heart failure.

The subject of dilatation of the right heart as a menace in pneumonia has received considerable attention by modern writers. Those of us who have seen a great deal of pneumonia will admit that it is a rare occurrence. A. Fraenkel[4] states that it cannot be found in all serious cases. Petzold[11] records observations in 271 cases without having found it once. Pässler[5] claims that it may occur in rare instances from increased resistance in the pulmonary circulation. On the other hand, all pathologists point out the fact that after death the right chamber of the heart is distended by firm coagula. But, as it *is* admitted to exist by clinicians, it seems unnecessary, at this time, to discuss the apparent discrepancy between clinical and the pathologic-anatomic attitudes; we certainly must admit with A. Fraenkel that if the heart is not too unfavorably affected by toxic effects, resistance in the pulmonary circulation "is overcome without difficulty and without dilatation of the right heart in the greatest number of cases."

The clinical picture differs altogether from that produced by vasomotor paralysis. The patient is cyanotic; there is great dyspnea; increased activity of all the obligatory as well as accessory respiratory muscles, as well *as by* all the other evidences of dyspnea are present. On examination we find the jugular veins overfilled, the movements of the heart very much increased, especially those of the right ventricle; on percussion there is increased heart dulness to the right from 1 to 3 cm.; on auscultation there is accentuation of the second pulmonary sound which disappears as the case progresses. Frequently edema of the lungs is also found. The liver is usually enlarged; when the condition lasts for over twenty-four hours it is very much enlarged. The patient dies in asphyxia—never in collapse, unless this condition is combined with vasomotor paralysis. The simplest treatment of this condition is blood-letting by venesection, and ordinarily from eight to sixteen ounces should be drawn. Primarily the pulmonary circulation is relieved, and, secondarily, the dilatation of the right heart. If there is pulmonary edema this may also disappear; at all events when done properly, phlebotomy

6. Brown, P. K.: Tr. Assn. Am. Physicians, 1906, xxi, 641.
7. Forchheimer, F.: Acute Myocardial Insufficiency, Arch. Pediatr., 1904, xxi, 684.
8. Gray, E. A.: The Influence of Suprarenals in Pneumonia, Med. Rec., 1902, lxi, 527.
9. Elsner, Henry L.: Treatment of Cardiac Asthenia of Pneumonia, New York Med. Rec., 1904, lxxix, 12.
10. Esser.: München. med. Wchnschr., 1904, li, 2314.
11. Petzold: Deutsch. Arch. f. klin. Med., lxx, 373.

is followed by remarkable results, so remarkable, indeed, as to make one wonder if blood-letting has not become what Gross called it, a lost art. It is, however, not necessary to do this in every case. The mode of treatment which is applied in ordinary cases of acute myocardial insufficiency is usually sufficient. It consists of hypodermic injections of digitalin in large doses, of camphor and ether, of caffein. Alcohol is not indicated unless the patient is an alcoholic.

The other cardiac conditions which may develop in the healthy heart are pericarditis, acute myocarditis and endocarditis. Endocarditis is the most frequent complication, and the third most common cause for pericarditis is the pneumococcus. In regard to acute myocarditis in pneumonia our knowledge is fragmentary. Without any other cause the frequency of pericarditis and endocarditis would lead one to imagine that acute myocarditis should also be present. But from what we know of the etiology of acute myocarditis this could not be final, as we find acute myocarditis in pneumonia, without either pericarditis or endocarditis. It seems, however, that acute myocarditis in pneumonia is the postfebrile form and as such leads to sudden death from acute myocardial insufficiency. Acute endocarditis is found as the simple and the septic form (malignant, ulcerative endocarditis). As pneumonia is a bacteriemia, it is not remarkable that the septic form develops with relative frequency. The treatment of these conditions is the same as is applied to them under other conditions.

From von Leyden's statement it seems that we in America, as well as the Russians, have taken to employing strychnin in the heart complications of pneumonia and, as he says, he also has employed it with benefit. As far as the heart is concerned, strychnin has an effect only in toxic doses. Indirectly given in normal doses it may, however, affect the heart by stimulating its inhibitory center, and, therefore, reducing its rate. It furthermore is followed by contraction of blood-vessels, but, in man, not sufficient to increase blood-pressure. As strychnin increases the irritability of the cord somewhat, many of the normal functions of the cord are increased in activity. Furthermore, it stimulates the respiratory center, in normal doses, but large doses are followed by paralysis. It would seem, then, that when we give large doses, so frequently administered in pneumonia in a routine way, we may stimulate the heart, but do great damage to the respiratory center. In small doses it is invaluable in pneumonia, in acute myocarditis, although it has also been given in enormous doses here with apparent success, but it is especially valuable as a stimulant of the respiratory center—indeed, as a stimulant of the whole cord. On the other hand, its routine administration, especially to the degree of producing toxic effects, should not be encouraged, as it does not prevent the accident we now most fear and, moreover, produces deleterious effects. Elsner[9] most forcibly states the position in regard to the administration of nitroglycerin in a healthy heart; we already have lowered blood-pressure; why should we increase it, and bring it to or beyond the danger line? It should not be given, even in overfilling of the right ventricle, as it especially affects the splanchnic area.

The treatment of pneumonia with coexisting heart disease has been variously described. Some authors give digitalis in every case, others only for specific indications. It would seem that as in routine administration of digitalis in any heart disease this drug might do harm, as it does when administered indiscriminately. With the present advance which we owe to modern pharmacy, in giving us reliable glucosids, acting when given in proper doses, either hypodermically or intravenously, with certainty and promptly, the preparation of the heart for a possible breakdown, which takes at least two days, is no longer necessary. At least such has been my experience in the last three or four years. In chronic valvular disease in which I always gave digitalis formerly I now restrict its administration to those cases in which there is a probability of decompensation because of the additional work put on the heart. The conditions may be summed up as follows, such as have already had decomposition or are having it when pneumonia develops, and, furthermore, in those valvular lesions in which compensation is not complete. Therefore, in all valvular lesions, except aortic or mitral insufficiency in which there is complete compensation, it is not wise to take chances.

With diseases of the myocardium we find, on the whole, the most dangerous complicated form of pneumonia; Pässler's statistics show that in pneumonia with chronic myocarditis the mortality is 93 per cent. While I believe this to be an exaggerated statement, because of the small number of cases which are considered, it is, nevertheless, true that chronic myocarditis is the greatest menace to life in patients with pneumonia. But here, as well as in all other forms of myocardial diseases, the degree of danger lies in the degree of existing chronic myocardial insufficiency. Any patient who goes into an attack of pneumonia with abnormally low blood-pressure due to chronic myocardial insufficiency has little chance for recovery.

Whenever any manifestation of myocardial insufficiency develops it should be treated as an acute myocardial insufficiency. The results naturally vary with the form of myocardial disease and with the individual condition. In the fat heart little can be expected from digitalis or strophanthus when the myocardium is already weak or there also exists arteriosclerosis. In the heart of Bright's disease when, notwithstanding the existence of heart disease, the blood-pressure goes down, caffein should be given in large doses and digitalis as well. In arteriosclerosis the blood pressure is an infallible guide to therapy; when it sinks the ordinary remedies should be applied; when it remains high it is not wise to give vasodilators. Myocardial disease due to other conditions, as chronic respiratory troubles, malformations of the thorax, etc., should be treated as all other chronic myocardial insufficiencies, in addition to which, at times, it may be possible to employ causal therapy.

Pericarditis does harm in two ways, either producing myocardial insufficiency by extension to the myocardium, by the production of adhesive processes or—which is rare—by the presence of fluid in the pericardial sac. When the latter exists the fluid should be removed; otherwise, the myocardial insufficiency should be treated.

Fourth and Sycamore Streets.

ABSTRACT OF DISCUSSION

DR. DE LANCEY ROCHESTER, Buffalo: I regret that Dr. Forchheimer could not go into the details regarding the treatment of dilatation of the right heart, because that is one of the conditions that it is not uncommon in pneumonia; in fact, it is very common. It is one of the conditions in which venesection is particularly indicated. I can recall at present twelve cases of pneumonia with dilatation of the right heart, and in all of them I believe life was saved by doing a prompt venesection, withdrawing from 200 to 400 c.c. of blood. As illustrative of its value, I should like to report one case. This patient was 18 years old, and had had a progressive pneumonia involving one lobe after another, so that all the right

lung and the upper lobe of the left as well as the pericardium were involved. The heart's apex was in the axillary line and the pulse was 180 or more, very irregular and small. The liver was two inches below the costal margin. There were present all the evidences of a dilated right heart. Flatness was complete on the right side, and it was feared that there might be fluid, and so the chest was aspirated in four directions, but nothing was found but solid lung. This patient was bled 250 c.c., and during the bleeding the respirations, which had been 66 to the minute, fell to 36; the pulse, which had been 180 and irregular and small, dropped to 120 and showed better tension. The heart, which had been in the axillary line moved to midway between the axillary and nipple lines in the fifth interspace and acted better. This patient's life was saved This illustrates one of the cases in which venesection was successful. It is a procedure which has gone into disrepute, but it should be used always when indicated.

DR. FRANK BILLINGS, Chicago: We all agree with Dr. Forchheimer that active measures are necessary when the cardiovascular syndrome develops; until that time, we are not all agreed as to what we should do with such patients. I think there is no disease in which rare judgment is so necessary not only in knowing what to give, but in knowing when not to give drugs. From my own experience I find that the longer I live and attempt to cure patients with pneumonia, the less I am inclined to give mixtures containing drugs until they are necessarily called for, and this is especially true in hospital work. The moment that cardiovascular symptoms appear, with the lowered blood pressure, with failing left heart, the time has then come for active work. I believe in the proper use of digitalis, but not as ordinarily given and by the mouth. With the hypodermic use of digitalis I have had a sad experience; it was with the active principles of the drug, and now I practically never use them. But I do use a preparation of the leaves themselves.

In an emergency, the intravenous use of digitalis gives good results. When used in that way it is not necessary to repeat the dose unless symptoms indicate. Four, six, ten, twelve doses may be necessary, and perhaps one dose, in some instances, will accomplish all that is necessary.

There are other remedies besides digitalis which increase the ordinary tone. Caffein is a good agent and camphor will readily raise the blood-pressure in cases of failing left hearts. I give one or two-grain doses in ordinary camphorated oil. Musk also will raise the blood-pressure. Strychnin and other drugs that are commonly used in failing left heart are absolutely valueless except to stimulate nerve centers; strychnin will not raise the blood-pressure 1 mm. I have used it over and over again. If that unfortunate condition occurs, dilatation of the right heart, I think that venesection is the one remedy to be applied and immediately, and it matters not whether the patient be plethoric or not.

The use of cold applications to the chest I have followed. In failing heart the applications of bandages about the extremities is sometimes of value. But whatever is used must be used with good judgment or more harm than good may result.

Finally, the watchful and vigilant care of patients afflicted with pneumonia without the use of drugs is the ideal treatment. Do not attempt to do good by any specific medication, but attempt to preserve the functions of the individual's body, and do not be nihilistic regarding the use of remedies. I think we may say that with proper management of the patient we may occasionally save patients who might otherwise die.

DR. C. F. HOOVER, Cleveland: I wish to call attention to the danger of accepting a measurement of blood-pressure as an equivalent for the mass movement of blood. The fact that a patient has a maximum blood-pressure equal to a column of mercury 140 mm. high, does not justify the deduction that the mass movement of blood is satisfactory. Patients with severe mitral stenosis, for instance, may have a great disturbance in the blood distribution of the body with marked asystole, and still have a normal arterial pressure. The sphygmomanometer is not a safe guide in estimating the mass movement of blood. The position of the right border of cardiac dulness, the size of the liver, the pulsations in the internal jugular vein and the duration of the pulse in relation to the maximum systolic blood-pressure are all factors which must be considered in estimating circulatory efficiency. To estimate the size of the right auricle by percussion is one of the nicest refinements of physical diagnosis, and yet this very point is one which must be determined to settle the question of therapy in pneumonia if we are to anticipate an advanced cardiac incompetency with a suitable therapy.

DR. JOHN H. MUSSER, Philadelphia: It is very important that we should remember in those cases of apparent cardiac failure, that such cardiac failure is the result often of pericardial effusion. Too often do we see these patients treated for heart failure, or acute dilatation of the heart in the course of pneumonia when by removing a few ounces of fluid from the pericardial sac the serious symptoms are relieved.

Of course Dr. Forchheimer will agree that the best treatment of the heart is that which is applied in the first period of the disease, as soon as the pneumococcus infection is recognized. Therefore, the results that are to follow will depend on such form of management. I am in sympathy and in accord with what Dr. Billings stated. In the majority of the cases I prefer to rely on fresh air, on judicious local treatment, on hydrotherapeutics, on regulation of the proper amount of food taken, and particularly on care that the patient is not overfed. I watch carefully for the phenomena so well pictured by Dr. Forchheimer, guarding against the possibility of the vasomotor syndrome by proper renal elimination. Attention to proper elimination is of the greatest importance in the management of the cases of pneumonia, looking toward the prevention of cardiac failure; in other words, looking toward the reduction of serious toxic symptoms that arise and have expression more particularly in the phenomena just pointed out. To keep down the amount of food is of the greatest importance in the management of pneumonia patients. Watch carefully the state of the intestinal tract. Tympany is a serious toxic symptom in pneumonia and its increase with defective elimination is a point that I depend on as suggestive of the occurrence of vasomotor failure. This can be prevented very largely. Colitis occurs with the pneumococcus affection, and this colitis is undoubtedly the cause of the development of tympanitis; the colitis plus the toxemia invites an intestinal paresis. Hence to prevent this colitis which gives rise to the tympany, it is well to observe carefully the diet, regulating judiciously the amount and kind of food taken, and washing out the bowels with normal salt solution. Basing treatment on the idea that cardiac symptoms are threatened when renal insufficiency appears, I begin very early the use of caffein; this is perhaps the only remedy I would begin with as a routine measure. In addition I rely on cocain when the conditions become more extreme.

In regard to right-sided dilatation of the heart I agree with Dr. Rochester as to the value of early venesection. One must remember that we must not place too much stress on the physical signs brought out by percussion and auscultation. I am not so much disturbed by the development of murmurs suggestive of dilatation as I am of the appearance of vasomotor phenomena. I am not alarmed when asked to see cases of old valvulitis with mitral regurgitation. When we observe a murmur over the right heart, or a murmur at the apex, there comes into play the safety valve action of the tricuspid; this was pointed out long ago by Guiteras and often bodes much good in these cases.

DR. ALEXANDER LAMBERT, New York: Eight years ago I became dissatisfied with the results of the treatment of pneumonia that I had been following; they were very unsatisfactory and I decided that when a large number of pneumonia cases came into the hospital, as at Bellevue Hospital, it would be well to compare the results of different treatments carried on simultaneously. In my division at Bellevue Hospital (there are four divisions), I gave up the use of alcohol and nitroglycerin and simply used those drugs by which we obtain a rise in blood-pressure. After three months, when each division had had from 125 to 137 patients each, I found that in those cases where alcohol and nitroglycerin has been used, the statistics were 10 per cent. higher in death rates in which the vasodilators had been used than were shown by those in which the

drugs that raised the blood-pressure had been used. In other words, judging from about 500 patients affected with pneumonia, the death rate was improved 10 per cent. by camphor, caffein, digitalis and agents which raised the blood-pressure.

DR. THEODORE POTTER, Indianapolis: The most remarkable phenomena occurring in lobar pneumonia are at the crisis and, in studying that crisis, it is made plain, as Dr. Forchheimer stated in his paper, that there is great danger to the heart, not from mechanical obstruction but from the toxemia. In dealing with this toxemia there are two chief things to help us; a rational comprehension of elimination in a natural way through the skin, kidneys and bowels, and an unlimited supply of fresh air to the lungs. After all, when these things are compared with drugs directed to the cardiovascular conditions, it seems to me they are far superior. Every one I think who has had to deal with pneumonia cases in an ordinary hospital has felt the great limitations under which he labors in the hospital ward. It is almost impossible in such hospitals to apply the rational fresh-air treatment in lobar pneumonia. Here, there are a large number of patients in the same ward; this is especially true in the large city hospitals. At times I have had to adopt certain expedients. I have taken patients into the delirium tremens room where the windows are kept open; here they could get the fresh-air treatment. But in private practice the problem confronts us, how to apply the fresh air treatment in a rational way. I am sure that everyone who sees such cases in his own practice or in consultation is confronted by it. I have got into the habit lately in teaching medical students of emphasizing the fact that the chief point in the whole matter of carrying out the fresh-air treatment, especially during the winter months it that there should be two rooms in the house for the treatment of such patients; that is practically the solution of the question. Time and again I have seen merely a crack of the window open; that is not real fresh-air treatment. The solution of this problem is in having a place for the patient and a place for the nurse. The nurse should have one room, and the patient another. This is the only way that the fresh-air treatment of these patients can be properly applied.

DR. FREDERICK FORCHHEIMER, Cincinnati: In making a diagnosis of congested or over-filled right heart, it is not necessary to prove by percussion, auscultation or inspection that the right heart is enlarged. The diagnosis of this condition can be made perfectly well by simply looking at the patient. It is almost impossible to err in regard to the existence of this form of heart trouble, or the existence of the Romberg-Pässler syndrome. In the Romberg-Pässler syndrome a vasomotor affection we have the addition of a profound anemia and a condition of collapse. In the other condition we find the opposite. We have fulness of the veins, congestion of the face, and all the evidence of dyspnea, an active dyspnea. There can be no mistake regarding the diagnosis, and one need not be so very particular about the direct examination of the right heart. In the treatment of this Romberg-Pässler syndrome, or vasomotor paralysis, I do not believe that digitalis is indicated, and for two reasons. In the first place it does not produce sufficient contraction of the splanchnic vessels to help in relieving the syndrome. In the second place if we increase the heart's activity by increasing the force of the systole, the result will be that the heart will force so much blood into the splanchnic area that it will be more embarrassed than before.

I do not believe we are going to gain much by the use of camphor, musk and other agents in this condition. I believe, however, that in cases of acute myocardial insufficiency either one of these remedies can be used with the greatest good to the patient. As to the question of blood pressure, I believe that Dr. Hoover is correct in what he has stated, but in conditions of splanchnic paralysis the blood-pressure tells the story; it shows that something extraordinary must have happened and this depends entirely on the localization of a mass of blood engorged in the splanchnic area. Those of us who have taken many blood-pressure observations have found that after the second or third day of a pneumonia the pressure is 100 or 102 mm.; that is a low pressure.

I have stated that, according to my belief, tympany is due to a vasomotor paralysis. That is why symptoms of tympany are always to be feared by the clinician.

We have all been using fresh air for a long time; in fact, v. Jürgensen recommended it in 1874 and possibly it was recommended even before that date. I have been using fresh air during the past thirty years in the treatment of pneumonia, and twenty-five years ago I published a paper on the subject. I think that of all the things recommended in the treatment of pneumonia fresh air is the most important. But there is no question regarding carrying out this plan of treatment in the hospitals; I think it can be carried out in the hospital even better than in private practice. All my patients in the hospital are treated by fresh air and simply by using a window tent or by keeping the windows wide open and the results are perfectly satisfactory.

I should like to make a statement in regard to the number of patients who have had this syndrome and whom I have treated. I have had a large number of such patients and I should say, without being mathematically correct, that about 50 per cent. were helped when the treatment was instituted early enough. Recently I saw a patient who had been suffering with this syndrome for twenty-four hours; I succeeded in raising the blood-pressure a little with adrenalin; the injection of caffein did not bring the blood-pressure up. A few hours later a second dose was given. I worked with that patient for some time but he finally died. If this patient had been treated early, and this is a very important part of the treatment, the result might have been different.

THE ACTION OF INTESTINAL ANTISEPTICS ON PEPTIC DIGESTION *

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It is generally conceded, both from experimental and clinical observation, that fermentation of the contents of the alimentary canal assumes pathologic importance in proportion to the degree of retardation of digestion. To prevent the development of fermentative changes it is customary to administer certain drugs, commonly called intestinal antiseptics, with the end in view of inhibiting the growth of the bacteria responsible for the abnormal condition. If it can be determined that the action of the digestive juices is still further impaired by drugs whose effects on the intestinal bacteria are at best problematical, then their use will be shown to be harmful. The object of this experimental inquiry was to determine, if possible, how far intestinal antiseptics interfere with the action of artificial gastric juice on protein matter.

We present the results obtained merely as a suggestion, for we fully appreciate the inherent difficulty of comparing experiments *in vitro* with processes occurring in the living animal body.

In reviewing the literature we find that Wolberg[1] in 1880 was the first to investigate this subject. He studied the action of various drugs and alkaloidal salts on the digestion of fibrin in a peptic juice made from a glycerin extract of the stomach of the ox. Fubini and Fiori[2] in 1881 determined that potassium iodid disturbed the peptonization of albumin in both artificial digestion and in animals. Extending the method of Wolberg, Dusterhoff[3] experimented with organic and inorganic iron

* From the laboratory of experimental physiology of Jefferson Medical College.

1. Wolberg: Arch. f. d. ges. Physiol. (Pflüger's), xxii, 291.
2. Fubini and Fiori: Untersuch. z. Naturl. d. Mensch. u. d. Thiere (Moleschott's), 1881, xii, 462.
3. Dusterhoff: Diss. Berlin, 1882.

preparations and found that the former produced a greater disturbance of digestion. The bismuth salts, especially the subnitrate, were shown by Israel to affect digestion in no essential way.

Schütz,[4] employing the polariscopic method of Klikowicz[5] of estimating the amount of peptone after digestion of egg albumin *in vitro*, determined that alcohol in the proportion of 2 per cent. inhibited and in 15 per cent. entirely stopped peptic digestion; corresponding results were obtained with salicylic acid in the strength of 0.006 per cent. and 0.01 per cent. The method of Katz[6] appeals to us as the most scientific and accurate; in a series of experiments on the effect of many drugs on artificial digestion, Katz estimated the peptone as nitrogen by the Kjeldahl process, after precipitation and separation of the undigested albumin. His results are as follows: Morphin hydrochlorid and sulphonal (3.0 to 200 c.c. of fluid) inhibited the action of pepsin on albumin; atropin sulphate, strychnin nitrate, tincture of nux vomica, chloral hydrate, potassium arsenate, tincture of strophanthus and creosote (in small quantity) were without effect; quinin sulphate, bisulphate and hydrochlorid caused an increased formation of peptone.

In our research we have studied the action of ten of the commonly used intestinal antiseptics on the digestion of egg albumin by pepsin. Five series of experiments have been carried out. In one we used the process recommended by the U. S. Pharmacopeia, 1900, for the assay of pepsin; and in the others, a modification of this test for reasons stated below. In the U. S. Pharmacopeia test, 10 gm. of coagulated egg albumin, passed through a No. 40 sieve, are digested with 0.003 gm. of pepsin in 40 c.c. of a 0.3 per cent. solution of hydrochloric acid at a temperature of 52 C. for two and one-half hours. The albumin and artificial gastric juice are agitated by inverting the receptacle once every ten minutes. At the end of the required time, 50 c.c. of cold water are added and the whole poured into a sedimenting tube and allowed to stand for one-half hour; then the quantity of undigested albumin is read off in cubic centimeters or fractions thereof. The amount of undigested albumin in the tube should not be more than 1 c.c. with pepsin of standard strength. We had some difficulty in obtaining pepsin which would conform to this test; many of the pepsins purchased in the open market were below the required standard.

The quantity of each drug to be employed in the tests was determined as follows: According to Atwater, an adult ingests about 120 gm. of proteid in twenty-four hours; this divided into three parts would be 40 gm. for the average meal. The percentage of proteid in egg albumin is about 12.5 per cent. or one-eighth. The 40 gm. of proteid, estimated as moist egg albumin, is equivalent to 320 gm.; hence the 10 gm. of albumin used in the test represent approximately one-thirtieth of the proteid ingested at each meal. On this basis we added one-thirtieth of the average dose of each drug to each test.

In the first series, in order to obtain one-thirtieth of the dose, we mixed with the average dose of the drug enough sodium chlorid to make thirty grains and used one grain of the resulting powder to each test.

Our results were shown in Table 1.

It will be seen in this series that peptic digestion was much disturbed, the amount of sediment being in every case more than in the control. Moreover, it will be observed, the state of division of the sediment in the control is much finer than in the tubes containing the antiseptics, indicating a farther advance in the process of digestion.

It seemed to us that the results obtained by subjecting the pepsin in the above tests to the temperature of 52 C. instead of about 40 C., at which digestion proceeds in the stomach, could not be compared with what occurs during gastric digestion. Of course, as already intimated, we are well aware that it is not justifiable to draw any parallel between experiments *in vitro* and similar processes taking place *in vivo*. Nevertheless we wished to imitate as closely as possible the conditions present during gastric digestion. Accordingly we modified the U. S. Pharmacopeia test as follows:

Instead of the 0.3 per cent. solution of hydrochloric acid we employed a 0.25 per cent. solution, which more closely corresponds to the percentage found in gastric juice; the amount of pepsin remained the same, as did also the quantity of egg albumin used in the previous test; the quantity of hydrochloric acid used was 50 c.c. Thinking that perhaps the sodium chlorid with which the drugs were diluted had some active influence on the test, we decided to eliminate that factor by dissolving the drugs in such a quantity of water that 5 c.c. of the solution would represent one-thirtieth of the average dose. The addition of the 5 c.c. of the drug solution would naturally lower the strength of the hydrochloric acid solution; we, therefore, added sufficient hydrochloric acid to compensate for that effect.

The temperature at which the albumin was digested was 40 C. and digestion was allowed to proceed for four

TABLE 1.—SERIES 1, PROCESS U. S. P. 1900

Albumin disintegrated by being passed through a No. 40 brass sieve; digested for two and one-half hours.

	Sediment. c.c.	State of Division.
Control	13	Very fine.
Acid, benzoic	23	Fine.
Acid, boric	23	Moderately fine.
Acid, salicylic	25	Coarse.
Beta-naphthol	25	Coarse.
Creosote	26	Coarse.
Phenol	24	Coarse.
Resorcinol	22	Moderately fine.
Sodium phenolsulphon	24	Moderately fine.
Sodium sulphite	25	Coarse.
Thymol	24	Moderately fine.

TABLE 2.—SERIES 2, PROCESS, MODIFIED U. S. P.

Albumin disintegrated by being passed through bolting cloth.

	Sediment. c.c.	State of Division.
Control	5.5	Moderately fine.
Acid, benzoic	8	Fine.
Acid, boric	6.5	Moderately fine.
Acid, salicylic	8	Moderately fine.
Beta-naphthol	7.5	Moderately fine.
Creosote	6.5	Coarse.
Phenol	6.5	Moderately fine.
Resorcinol	6	Moderately fine.
Sodium phenolsulphonate	6	Moderately fine.
Sodium sulphite	12.5	Coarse.
Thymol	7	Moderately fine.

TABLE 3.—SERIES 3. PROCESS AS IN NO. 2, EXCEPT AS FOLLOWS:

The albumin was disintegrated by being passed through a No. 20 horsehair sieve.

	Sediment. c.c.	State of Division.
Control	13	Fine.
Acid, benzoic	14	Moderately fine.
Acid, boric	13	Moderately fine.
Acid, salicylic	16	Moderately fine.
Beta-naphthol	16.5	Moderately fine.
Creosote	15	Moderately fine.
Phenol	14	Moderately fine.
Resorcinol	13.5	Moderately fine.
Sodium phenolsulphonate	14	Moderately fine.
Sodium sulphite	18.5	Coarse.
Thymol	18	Moderately fine.

4. Schütz: Prag. med. Wchnschr., 1885, xx, 193.
5. Virchow's Arch. f. path. Anat., 1885, cii, 360.
6. Katz: Wien. med. Bl., 1889, xii, 19, 436, 453.

hours, the containers being agitated by inverting them once every ten minutes. At the expiration of the time the contents of the receptacles were poured into the sedimenting tubes and enough cold distilled water added to make 100 c.c. After sedimenting for one hour the cubic centimeters of undigested albumin were read off.

In this series the antiseptics have not interfered as much with the digestion of the albumin as in Series 1, although it is quite evident that they have had a retarding influence.

Comparison of Series 2 and 3 will show that the results correspond fairly well. The difference in the amount of albumin digested is probably due to the fact that a different brand of pepsin was used in each and the particles of albumin were much larger when passed through a No. 20 sieve than through bolting cloth, the coarser particles being more resistant to the action of the artificial gastric juice. In an average of the three series it will be noted that sodium sulphite was the most powerful in retarding digestion and that boric acid and resorcinol were the least active.

We do not believe that by the use of the U. S. Pharmacopeia process and modifications of it thus far employed in this study one can arrive at accurate conclusions either as to the digestive power of pepsin or to the effect which other substances may have on peptic digestion, even *in vitro*.

We, therefore, thought it advisable to resort to a different and more accurate method. This consisted in estimating the amount of peptone and allied products formed at the end of digestion by determining their nitrogen content according to the Kjeldahl method as recommended by Katz.[6]

The digestion of 10 gm. of coagulated egg albumin was performed as in Series 2. At the end of digestion the undigested albumin was precipitated by the addition of sodium chlorid to saturation to each bottle, followed by a few drops of acetic acid saturated with sodium chlorid. The solution of peptones was separated by filtration and its nitrogen determined as beforesaid by the Kjeldahl process.

The average of two series of experiments gave the following results shown in Table 4:

TABLE 4.—NITROGEN YIELDED BY PEPTONES *

	Quantity. Gm.	%
Control	0.01197	100
Acid, benzoic	0.0077	64
Acid, boric	0.00962	80
Acid, salicylic	0.00857	71
Beta-naphthol	0.00822	68
Creosote	0.00875	73
Phenol	0.0084	70
Sodium sulphite	0.00875	73
Thymol	0.00945	78

* Estimating control at 100 per cent.

CONCLUSIONS

1. Intestinal antiseptics interfere with peptic digestion *in vitro*.

2. Beta-naphthol, salicylic acid, sodium sulphite and thymol are the most active in retarding digestion.

3. Boric acid and resorcinol are the least active.

4. The uniformity in the results of our experiments would seem to warrant the inference that intestinal antiseptics interfere with digestion in the stomach and probably in the intestine.

1642 Pine Street.

A Model City.—Our national capital, the city of Washington, should be a model sanitary city, free from insanitary tenements and workshops, air pollution, water pollution, food pollution, etc., with a rate of death and a rate of illness so low as to arouse the attention of the world.

THE PARALYTIC COMPLICATIONS OF HERPES ZOSTER OF THE CEPHALIC EXTREMITY

A PRELIMINARY REPORT ON THE HERPETIC INFLAMMATIONS OF THE GENICULATE, GLOSSOPHARYNGEAL, VAGUS AND ACOUSTIC GANGLIA *

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Idiopathic or true herpes zoster is an acute infectious disease characterized by general symptoms; fever, headache and great prostration and a focal manifestation; an eruption of herpes zoster on the skin and mucous membranes.

The characteristic pathologic changes are found in the posterior spinal ganglia and in the Gasserian ganglion *(posterior poliomyelitis)*. These structures are derivatives of the so-called neural ridge, and the ganglion cells having this origin belong to the so-called unipolar or spinal type. The geniculate ganglion, the ganglia of the glossopharyngeal and vagus nerves, as well as the auditory ganglia (the *ganglion* of *Scarpa* and the *ganglion spirale*) also take their origin from the neural ridge, and as such must be brought within the realm of the specific ganglionic inflammation of herpes zoster.

The affected ganglion is the seat of an hemorrhagic inflammation which gives rise to pains (herpetic neuralgia), objective sensory disturbances and an eruption of herpes zoster in the zone corresponding to the affected ganglion. Milder inflammatory changes may also be present in the ganglion above and below the chief or eruptive focus. I have studied the motor complications of this affection, and more especially the cranial nerve palsies and auditory symptoms which occur in the cephalic zona.

I have collected, including my present observations, reports of 158 cases of paralyses of various kinds in herpes zoster, a complete analysis of which will be published later. They are distributed as follows:

Motor oculi, 18 cases.

Trochlearis, 1 case.

Abducens, 5 cases.

All these ocular palsies were associated with herpes frontalis or herpes facialis.

Brachial palsies, 12 cases. Eight of these were of the upper-arm types and four were mixed, upper- and lower-arm types. These arm palsies all occurred in herpes zoster of the upper extremity.

Abdominal palsies, 2 cases. These were associated with herpes zoster of the trunk.

Facial palsies, 80 cases. In all of these, the eruption was confined to the cephalic extremity of the body as follows:

Herpes occipito-collaris, 43 cases.

Herpes facialis, 14 cases.

Herpes oticus, 19 cases.

Herpes facialis and herpes occipito-collaris combined, 1 case.

Herpes oticus and herpes occipito-collaris combined, 3 cases.

Auditory nerve complications were present in 30 of these cases. They varied in character from a simple diminution of hearing to a severe form of Ménière's syndrome.

The occurrence of herpetic inflammations in the glossopharyngeal and vagus ganglia is worthy of emphasis for the relation which they bear to the herpes pharyngis, herpes laryngis and herpes oticus.

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

In some of these cases pneumogastric symptoms have been observed; such as bradycardia, hiccoughing, nausea and vomiting.

I, therefore, attribute to the zona of the cephalic extremity a special importance, because of the occurrence of facial palsy, deafness, symptoms of Ménière's syndrome and vagus symptoms.

These cranial nerve complications do not occur except in herpes zoster of the face, ear, pharynx, larynx and the head and neck. Therefore, these various clinical types should be regarded as constituting a definite clinical entity. I consider the zoster zones for the geniculate, glossopharyngeal, and vagus ganglia as capable of being differentiated (herpes zoster oticus, pharyngis et laryngis).

The clinical types are as follows: Herpes facialis, herpes oticus, herpes pharyngis, herpes laryngis, herpes occipito-collaris; with facial paralysis and auditory symptoms, alone or in combination.

The facial palsy in 50 cases occurred without auditory symptoms. In 30 cases of the total number (80) both facial and auditory symptoms were present. The acoustic symptoms may also occur without the facial paralysis. In some cases the auditory ganglia are alone the seat of the herpetic inflammation, giving rise to tinnitus aurium and deafness, and in some cases symptoms of Ménière's disease.

Rarely vagus symptoms may be present, hiccoughing, bradycardia and vomiting. The underlying pathologic condition in all of these types is a herpetic inflammation of cranial nerve ganglia.

112 West Fifty-fifth Street.

ABSTRACT OF DISCUSSION

DR. JAMES ALLEN PATTERSON, Colorado Springs, Colo.: The rarity of paralytic lesions is noticeable in the literature of ophthalmic herpes, and as I had a case last winter in which there was distinct paralysis of the external ocular muscles as well as of the pupil, I was particularly anxious to hear this paper. I want to remark in particular the infrequency of paralytic phenomena in ophthalmic herpes as seen by oculists.

DR. HOWELL T. PERSHING, Denver: Does Dr. Hunt regard the view that herpes follows specific inflammation as being confirmed, and does one attack of herpes protect the individual from a further attack?

DR. J. R. HUNT, New York: I regard the true herpes zoster as a specific infectious disease. It is a disease in which the lesion is situated in the ganglion, although one must also recognize neuritic herpes and zosteroid condition of the skin which resembles it.

Fatal Effects of Lowered Air Pressure Not Due to Lack of Oxygen.—In rarefied atmospheres such as are encountered at high elevations, it is not the scarcity of oxygen which produces the weakness and depression and the other symptoms which usually accompany mountain sickness, but rather the disturbance of the circulation in the lungs due to the purely mechanical effects of a lower barometeric pressure. A. Rosendahl (*Ztschr. f. Biol.*, 1909, lii, 16), has produced in rats and rabbits, by exposure to an atmosphere which contained an excess of oxygen, but which was reduced to a low barometric pressure artificially, symptoms analogous to those seen in mountain sickness in these animals. The animals soon recovered when transferred to an atmosphere of ordinary pressure which contained less than the ordinary quantity of oxygen and an excess of nitrogen. It was further found that rats and rabbits became dyspneic in an atmosphere containing mostly oxygen, if the air pressure was only slightly lowered. An increase of pressure above the normal was well endured in atmospheres of normal consistency and in those which contained a high percentage of nitrogen.

LICHEN PLANUS

A CONSIDERATION OF ITS ETIOLOGY AS ILLUSTRATED BY AN ACUTE CASE *

DOUGLASS W. MONTGOMERY, M.D.
AND
HARRY E. ALDERSON, M.D.
SAN FRANCISCO

We believe lichen planus to be a distinct disease, and we also believe it to be a constitutional disease with manifestations on the skin and mucous membranes.

Lichen planus almost always occurs in its chronic forms, and as such its constitutional symptoms are frequently so slight as to escape detection. In the acute cases, however, the general constitutional symptoms become salient and form an important part of the clinical picture, of which the following is an example:

HISTORY OF CASE

Patient.—An obese, pulpy-looking Mexican woman, aged 40, and engaged in general housework, entered the University of California Hospital, July 8, 1908, with a very itchy tormenting eruption. She said that before its appearance she had worked very hard for some time and that for several months she had not menstruated.

History.—Previous to this her menstruation had been normal, and she had enjoyed good health. Her present trouble came on about the middle of June, 1908, that is, about three weeks before entering the hospital. She said she suddenly began to feel very sick, nauseated, had feverish sensations alternating with chills, most marked at night, indefinite shifting pains, and great prostration. Coincidently with these symptoms there suddenly appeared all over the body a rash, which she said was like the present eruption, but much more itchy.

Examination.—When the patient entered the hospital she had a lichen planus eruption almost universal in distribution, but gradually becoming less profuse along the extremities, and entirely sparing the hands and feet. The buttocks were also free from eruption, and there was a free strip down the inner side of both upper extremities. The scalp was studded with papules and the rash on the face was confluent, the lower eyelids were swollen, and the conjunctivæ were so inflamed as almost to evert the lids. Typical papules could be best seen on the forearms, where they were scattered between the large rounded ones. They were small, angular, yellowish red, firm, flat-topped, waxy, glistening and in many instances covered with a thin, tightly adherent scale. A few were umbilicated. All of the papules on the face, however, and most of those on other parts of the skin, were large, rounded, prominent, firm bodies resembling in appearance the lesions in syphilis or leprosy, but differing in being intensely pruritic. These papules were indeed so firm as to give the impression of little tumors set in the skin, and their rounded prominent shape was so pronounced as to deserve the designation "obtusus," although as Brocq has remarked, this adjective is applied to another form of lichen planus.[1] At first glance, indeed, it looked as if the patient were afflicted with leprosy, but this resemblance was soon seen to be fallacious, as on minuter examination the differences were seen to be more marked than the similarities. To clinch the matter, however, the juice from some of the tubercles was stained for lepra bacilli, and none was found. As for syphilis, the eruption was altogether too slow in its evolution and involution, and too thickly strewn on the face, and besides it was intensely itchy. There was no history of syphilis, no mucous patches, and the superficial lymphatic nodules were not enlarged, as they would be in early constitutional syphilis. The patient's tongue was heavily coated, the breath was foul, the throat was sore, and there were whitish, sodden-looking patches on the tonsils, which were thought to be exudate from the intensely inflamed

* Read in the Section on Dermatology of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

1. Brocq, L.: Dermatologie pratique, ii, 198.

tonsils, and were certainly not characteristic of either syphilis or lichen. No lichen patches were found on any of the mucous membranes, in this respect following the rule when the eruption is acute and generalized.[2] The gastrointestinal tract was very sluggish. The liver was slightly enlarged, but not tender. There was no demonstrable enlargement of the spleen or of the lymphatic nodules. The right lobe of the thyroid was slightly enlarged. Dr. William G. Moore found no abnormality in the vagina or pelvis. The temperature and pulse were normal in the morning, but toward evening the temperature ran up to 38. The blood examination showed:

Hemoglobin	85
Erythrocytes	3,808,000
Leucocytes	7,000
Polynuclears	75
Large mononuclears	8
Small mononuclears	13
Eosinophiles	4

An examination made one month later showed practically the same proportions. The urine was dark yellow, turbid, and its specific gravity was 1.021. It was acid, contained no sugar, and showed a trace of albumen. There was an occasional hyaline and granular cast, a few red blood corpuscles, very many squamous epithelial cells, and many white cells.

Treatment and Course of Disease.—A soothing line of treatment was adopted, and she was given:

℞	gm. or c.c.	
Liquoris picis carbonis (B. P.)	2	m.xxx
Liquoris plumbi subacetatis	12	fl.℥iii
Olei olivæ		
Liquoris calcis	āā 60	fl.℥ii

M. et sig.: Use externally.

℞	gm. or c.c.	
Magnesii carbonatis		
Bismuthi subnitratis	āā 20	ʒv
Tincturæ rhei	90	fl.℥iii
Aquæ menthæ piperitæ	ad 240	fl.℥viii

M. et sig.: A dessert spoonful after eating, three times daily.

In the first forty-eight hours she was given milk alone, and afterward other foods were slowly added. The general condition and skin slowly improved. At times, however, she had acute sore throat, headache, fleeting pains in the joints, malaise, violent conjunctivitis, erythema of the eyelids and face, and a marked extension of the papular eruption, resembling in these respects the case of Nicholas and Favre.[3] The temperature ran along between 36.2 and 37.4 until August 10, when it jumped up as will be noted later.

About July 31 her eyelids became swollen and very painful, her throat again became sore, and she complained greatly of shifting pains in the joints. The trouble in the eyes was relieved by boracic acid cold compresses, and drops of a 5 per cent. argyrol solution, and the pains in the joints were controlled by five-grain doses of aspirin given every three hours, and at the same time the other symptoms were relieved. This control of the symptoms by one of the salicylates, aspirin, is very interesting and will be referred to later. On Aug. 10, 1908, on Dr. Howard Morrow's suggestion, atoxyl 0.10 was given intravenously. The patient was rather languid all through the next day, and complained of general soreness in the lesions of the skin, and of frontal headache. On the following day there was decided malaise, and the general pains were rather severe, being most noticeable between the scapulæ. During these two days the temperature gradually ascended till it reached 38.5. On the third day after the atoxyl injection, the temperature dropped to normal, she felt quite well again, and there seemed to be some improvement in the skin. These injections were resumed on August 15, and from August 15 to August 24 she was given an injection of 0.15 atoxyl every second day, without producing any reaction. Although the atoxyl did not give any reaction yet the patient steadily continued to grow worse and the itchiness, especially of the eyelids, increased. The patient was now given:

℞	gm. or c.c.	
Hydrargyri chloridi corrosivi	0.06	gr.i
Syrupi sennæ		
Aquæ	āā 60	fl.℥ii

M. Sig.: A teaspoonful in a little water after food, t. i. d.

Under this mixture the patient slowly and steadily improved for one month when she complained of sore throat and increased itchiness of the face. The dose of corrosive sublimate was then raised from 0.002 to 0.005 and 0.6 of iodid of potash was added to the prescription.[4] The improvement that had set in on giving the corrosive sublimate continued, and no special effect was noted as following the addition of iodid of potash. This treatment was continued for about one month when papules over the glabella, above the eyebrows, and on the upper arms became markedly hyperkeratotic, each papule being crowned by a gray, hard, dry, tightly adherent, coruscated crust. At the same time she complained of sore throat and increased itchiness of the face. For this hyperkeratosis she was given an 8 per cent. ointment of salicylic acid. The active lesions steadily disappeared, and the hyperkeratosis improved, but now the subjective symptom of universal formication became very pronounced, and it was thought that arsenic might be beneficial. She was then given 0.12 doses of Fowler's solution three times a day for a week. The whole condition became suddenly worse, and she got a herpes labialis. She was put back on corrosive sublimate and iodid of potash.

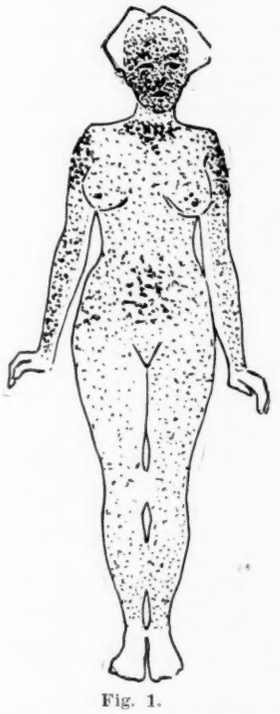

Fig. 1.

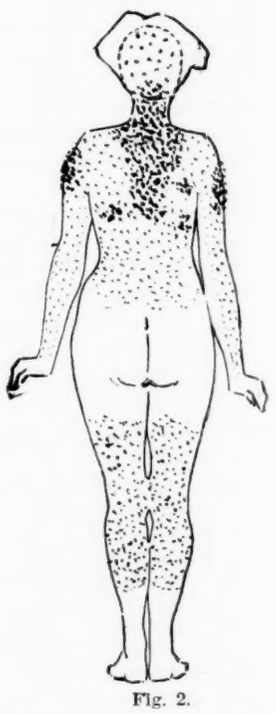

Fig. 2.

Figs. 1 and 2.—Distribution of lesions. Note free areas: feet, hands, inner surfaces of upper limbs, buttocks and upper part of thighs.

By Feb. 3, 1909, a pea-sized intensely itchy hypertrophic scar had developed in a biopsy wound. On Feb. 24, 1909, the iodid of potash was omitted from her prescription because of a profuse mucous discharge from the nose. The pigmented lesions were at this time slowly fading. The patient called again on March 22, because of a few acute very itchy lesions over the supraorbital ridges, on the chin, upper lips, cheeks and over the elbow tips. Her tongue was heavily coated, breath foul, gums tender, teeth "on edge," and she had diarrhea. She was evidently suffering from hydrargyrism, and the alimentary disturbance consequent on this was accentuated by her occupation as cook in a Mexican restaurant, and eating between meals. This lichen outburst was particularly interesting because it occurred while deeply under the influence of mercury. We concluded in fact that the mercury and the errors in diet, by causing irritation of the alimentary tract, were the cause of this outbreak. Consequently the mercury was dropped, and a mixture composed of carbonate of magnesia, subnitrate of bismuth and tincture of rhubarb was prescribed, under which the acute symptoms subsided.

2. Radcliffe-Crocker: Brit. Jour. Dermat., February, 1908, p. 47.

3. Nicholas and Favre: Ann. de dermat. et de syph., July 1906, page 701. In a case reported by Dr. Howard Fox also (Jour. Cut. Dis., May 1908, p. 237) at the beginning of each attack of lichen ruber the patient generally felt weak and nauseated.

4. This was in accordance with the recommendation given by Hardaway and Grindon (Cutaneous Therapeutics, p. 169).

Another biopsy was made at this visit of a lesion that had reached the pigmented depressed scarlike stage. This wound was dressed with collodion and cotton, and interesting to relate, the patient returned four days later with a beautiful bullous eruption surrounding the collodion dressing. We think it probable that the occurrence of the bullæ was a manifestation of the peculiar kind of irritability of the skin in these cases, and was of the same nature as the intercellular and intracellular edema and the subepithelial cleft so often observed in this disease.

It was about this time that, in conversation, Dr. H. R. Oliver mentioned that, in a case diagnosed as lichen planus by two well-known dermatologists, a Wassermann reaction positive for syphilis had been found. Dr. Oliver kindly consented to test our patient in the same way, and found her also positive for syphilis. This result caused us to review our facts carefully lest, in view of the success achieved with mercury and iodid of potash and the failure of arsenic, the presence of a few equivocal histologic features and also the difficulty often

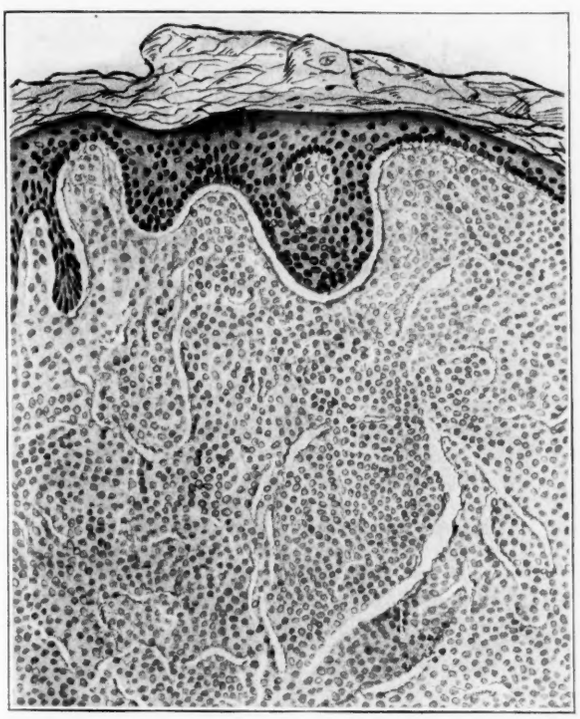

Fig. 3.—Microscopic view of cross-section of early lesion: this and the following illustrations are from drawings by Dr. A. W. Lee of the Medical Department of the University of California.

experienced in differentiating the eruption of lichen planus from some of the papular eruptions of syphilis, some should conclude that we have here to do with lues and not at all with lichen planus. That this patient may have acquired syphilis may be true. When her throat was intensely inflamed, in the early stages of her trouble, she had a white coating on her tonsils, and at one time she had a white patch on her lip. The tonsillar coating, however, was not at all characteristic of syphilis, and the lesion on the lip looked more like a cigarette burn or a herpes simplex than a mucous patch. Nevertheless scrapings from it were carefully searched for spirochetes, but none was found. Also it was noticed when making the atoxyl injections, that her veins were hard and brittle, and microscopically the arteries of the skin were thick-walled and had sleeve-like infiltrations which may have been due in part, at least, to syphilis. As for the eruption, however, that was another story. Although many of the individual papules resembled the papules of syphilis, yet the stormy intensely itchy nature of the attacks, associated with acute conjunctivitis and sore throat, and the long endurance of the eruption and uniform character of the lesions gave a picture entirely different from anything observed in syphilis. It is interesting also to note here that although the patient improved under bichlorid of mercury, yet as soon as the mercury began to salivate and so to irritate the alimentary canal new lichen papules began to appear. Microscopically also, as will be stated later, the infiltration of mononuclear cells resembling lymphocytes into the upper corium sharply circumscribed below, together with degeneration and absorption of collagen and elastin, and the subepidermal cleavage were changes just such as we would expect to find in lichen plnus, and were not those of syphilis.[5]

HISTOPATHOLOGY

EARLY LESION

About three weeks after the onset of the disease a small unscratched papule was removed from the right forearm under ethyl chlorid anesthesia locally. It was fixed in Müller's solution and formaldehyd, equal parts, hardened in alcohol, mounted in celloidin and stained in various ways. This lesion in many details corresponded with the findings of various investigators of lichen planus, but in some of its features it was somewhat atypical. Briefly, the following were to be observed:

Epidermis.—Stratum corneum: Hyperkeratosis with layers loosely connected. In places horny plugs were formed.

Stratum Lucidum: This was not demonstrable.

Stratum Granulosum: This was deficient, consisting in the main of but one or two layers of cells, but occasionally there was seen a small patch three to four cells deep. The keratohyalin granules were very deficient, and occasionally a clear nuclear space was seen surrounded by a faint zone of protoplasm. The nuclei varied decidedly in staining capacity, some being strongly basophilic and others only slightly so. This stratum had the appearance of being greatly stretched longitudinally.

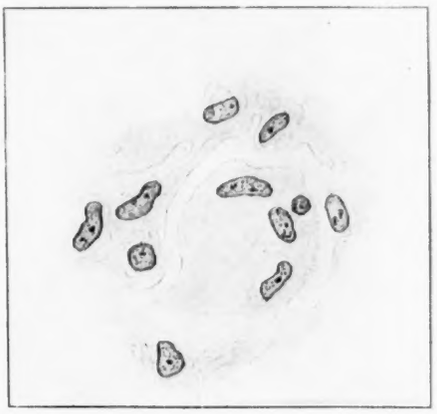

Fig. 4.—Giant cell, early lesion.

Stratum Spinosum: This varied in thickness, averaging four to ten layers. Toward one end of some of the sections, it was very thin and stretched longitudinally. Here also the rete pegs were flattened out. Toward the other end, there was hypertrophy and marked acanthosis. In places just over the papillæ, this stratum was very thin. In the main, the rete pegs were rather widely separated. There was intracellular and intercellular edema. Many of the nuclei were surrounded by a clear zone and occasionally there was seen nothing but a clear space surrounded by a faint zone of protoplasm with well-marked prickles. The prickles persisted throughout, although in places they appeared to be greatly stretched. The nuclei varied greatly in staining capacity. In the lower part of this stratum occasionally the intercellular edema was so great as to suggest commencing vesiculation. There were wandering cells in these intercellular spaces showing ameboid forms, adapting themselves to the tortuosity of the channels.

Stratum Germinativum: This presented two to four layers of cells in which the pigment was deep in color. Over the densest part of the deeper lesion and also where the edema was greatest, the pigment was absent[6].

5. Ehrman and Fick and also G. B. Dalla Favera (Monatsh. f. prakt. Dermat., April 1, 1909) have observed the absorption of elastic tissue in this disease.

6. Ehrman and Fick (Histopathologie der Haut) note also this absence of pigment.

There was a thin clear line of cleavage between the basal layer and corium, which was bridged over here and there by irregular fibrils, basophilic in reaction.

Corium.—The papillæ, over the lesion, were greatly widened, but elsewhere some could be seen, narrowed and extending almost to the stratum granulosum. There was a dense cellular mass, well circumscribed below and extending up to the epidermis, from which it was separated in places by a narrow zone of basophilic, finely granular collagen, or by the line of cleavage already mentioned. The essential lesion was in the upper corium. At the periphery of this lesion, the cell mass sent out prolongations in thin zones; following the blood vessels a short distance. This cellular mass consisted of several types of infiltrating cells, which will be described in order.

1. The predominating type was mononuclear, round or oval, and as a rule, slightly larger than a red blood cell, but occasionally it was considerably larger. It resembled greatly a mononuclear leucocyte, and frequently could be seen in the lumen of a blood vessel. This type was often observed, assuming ameboid forms, and also it frequently presented appearances strongly suggestive of amitosis. The nucleus was vesicular and faintly basophilic, in some instances barely staining at all. Seldom could the protoplasm be seen, but sometimes it was represented by a narrow zone slightly basophilic. At times this zone was acidophilic. Occasionally the nucleus was placed eccentrically and the protoplasm was increased. Sometimes the cell body showed prolongations which apparently fused with the adjacent cells.

2. Furthermore there were smaller round cells with small, rather deeply staining nuclei, which were usually placed towards the periphery of the cell. There were no chromatin bodies in evidence, the nucleus presenting a homogeneous appearance. The protoplasm was usually acidophilic and occasionally very strongly so. This type also would be seen in some of the vessels. It often resembled morphologically the small tissue plasma cell. Occasionally two nuclei were seen, one at either pole of the cell.

3. Giant cells were seen with deeply staining nuclei, resembling in form those of connective tissue. These nuclei varied from three to fifteen or more in number in each cell. They were arranged peripherally toward one pole, and as a rule, within a narrow zone of the colloid protoplasm, but occasionally they were grouped in a bipolar manner. Two or three typical giant cells, and numerous incomplete forms were seen in each section.

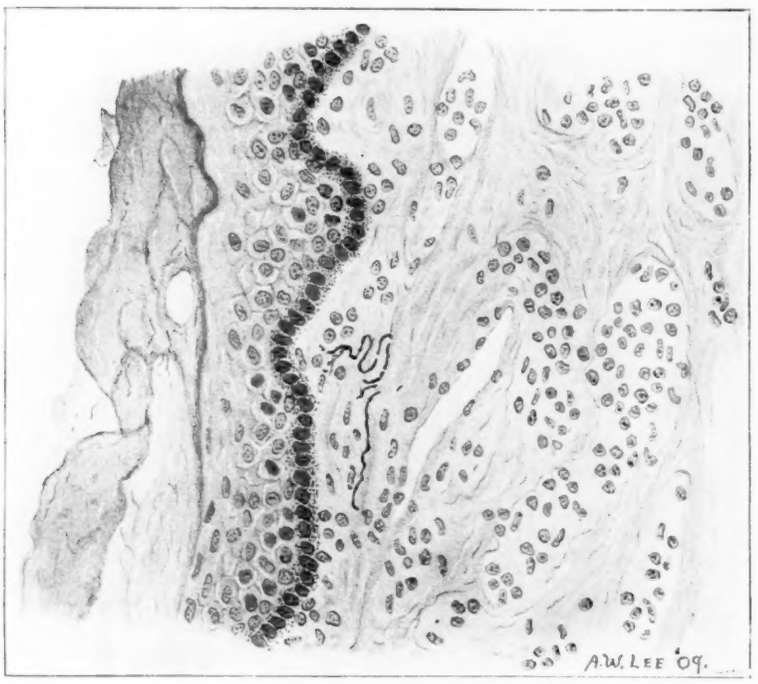

Fig. 5.—Microscopic view of cross-section of late lesion.

4. There had evidently been some proliferation of connective tissue cells, for their nuclei were seen in increased numbers. They presented evidence of degeneration in that they were often very pale and often very deeply stained. Their protoplasm was usually basophilic, and corresponded in appearance with that seen in the giant cells.

5. Polymorphonuclear leucocytes were seen fairly often in small groups throughout the lesion, and also in the vessels.

The collagen was very edematous, and showed irregular areas of degeneration. Where the cellular mass was thickest, and particularly along a narrow zone directly beneath the basal layer, the collagen was represented by a degenerated homogeneous, basophilic, finely granular substance. Broken up blocks of basophilic collagen, in transverse section, could be seen here and there. Deeper in the lesion, opaque masses of basophilic collagen could be seen, resembling the degeneration seen in sarcoma. This type existed below this region along with large broken-up masses. This extensive degeneration of the connective tissue was a very interesting feature. The narrow zone of finely granular basophilic collagen, immediately beneath the epidermis, taken in connection with the cleft which occurred here, represented a line of lessened resistance. Bridging across the cleft at frequent intervals were tiny basophilic strands. These bridges were absent for some distance in places.

The elastic fibers had all degenerated along the "zone" above referred to, and only rarely could a few tiny fibrils be seen in a papilla. These fibers were all broken and in places absent, where the cellular mass was most dense and where the collagen had undergone marked degeneration. For the most part the remaining elastic fibers stained deeply, but occasionally they appeared very faintly. They seemed to terminate abruptly about three cell-breadths from the basal layer, at the border of the narrow granular zone above mentioned.

The blood vessels were usually dilated and in their lumina could be seen many red blood cells and mononuclear leucocytes, with occasional polymorphonuclears. The papillary vessels right up to the summits of the papillæ were dilated and full. They all showed thickened walls and greatly swollen endothelium, and were all surrounded by the infiltration and proliferating cells already described. Often the perivascular infiltration was very dense.

The coil glands showed some increase in nuclei, which were deeply basophilic. Usually the lumen was not apparent, but occasionally it could be seen dilated. Portions of their ducts showed no dilatation.

LATE LESION

Five months after the onset of the disease, a pigmented atrophic lesion was removed from the arm, under ethyl chlorid anesthesia locally, fixed and hardened in alcohol, mounted in celloidin and stained in various ways.

The following was to be observed:

The stratum corneum showed hyperkeratosis, and the stratum lucidum was well defined in some sections. The stratum granulosum was deficient, consisting usually of from one to three rows, but occasionally in a small area showing an increase of four to six cells. The entire epidermis was more nearly normal and did not show edema. The rete pegs were still somewhat flattened, and the stratum spinosum was not quite as thick as the normal. Occasionally a little pigment was seen in the stratum spinosum, but pigment in the main was limited to the two or three rows of cells constituting the stratum germinativum, where it was abundant and not absent at any point.

In the corium it could be seen that the edema had subsided, the infiltration had become dispersed in streaks and small foci, and there had been some regeneration of collagen. The infiltration extended in streaks off into the periphery, following the vessels, follicles and ducts. These cells were also grouped into small masses, surrounded by collagen fibers, and situated principally in the upper corium. This infiltration now consisted very largely of typical plasma cells, and many small

round cells. Proliferated connective tissue nuclei were present in increased numbers.

There was no line of cleavage at the epidermis border, and the collagen throughout had to a great extent regenerated. The papillæ were still widened and flattened in places.

The elastic fibers showed the same degeneration seen in the early lesion. Deep in the corium some large normally staining fibers were present. There were also some few detached fibers in the papillæ. Elsewhere they were represented by a homogeneous, somewhat granular substance, which took the acid dye feebly.

The collagen, as well as the elastic tissue, was absent in the infiltrated foci.

The blood vessels were not dilated, and were not much in evidence. They showed thickened walls, swollen endothelium, and occasionally could be seen with complete obliteration of their lumen.

The coil glands showed no special abnormality. Their ducts could be occasionally observed slightly dilated.

Very few now believe in the infectious nature of lichen planus; even in those rare instances in which the disease occurs in several members of the same family the malady is attributed to some other cause, such as predisposition.[8] Many observers think the disease of nervous origin, because it occurs in nervous individuals, and because the eruption frequently appears in streaks, seemingly following along nerve tracts. This

Fig. 6.—Plasma cells, late lesion.

streaking, however, may be due to another cause. In fact there are many features of lichen pointing directly to its being a general disease with the eruption as one of its symptoms, and the acute cases are the ones that throw most light on this view, as the symptoms are more accentuated. In the first place the skin eruption of lichen may occur on any part of the cutaneous surface, not infrequently in the same patient either at the same time or at different times in widely separated localities. Furthermore, the eruption of lichen often appears on the mucous membranes as well as on the skin, or it may even occur on the mucous membranes alone.[9]

As another evidence of the implication of the whole body in the disease process there is now the well-authenticated fact that the eruption is apt to break out on the site of any unusual irritation. That is to say, the whole skin in lichen subjects is in a state of irritability, and reacts in producing lichen eruption when the right kind of irritation supervenes. This applies probably to the entire mucous membranes as well as to the skin. In this connection we may consider the peculiar susceptibility of lichen subjects to pneumonia as noted by Schütz. Furthermore, he enumerates a great number of changes in the blood circulatory apparatus as being coincident with lichen planus and mentions that Leredde found overfilling of the blood vessels of the cutis in making a microscopic examination of the sound skin in a lichen patient.[10] The nervous system also often shows a high state of irritability, and it is a frequent observation that these patients are nervous, high-strung and sleepless. It is difficult to imagine anything but a toxin producing these results. The sudden stormy nature of the attacks in the acute cases also looks like the work of a toxin, acting much in the same way as the ferments producing the urticarias. We can imagine such a toxin only as flowing in the blood stream. This is a conclusion also reached by Fordyce.[11] Turning now to the microscopic anatomy of the lichen papule, we find that the earliest lesions are dilatation of the small blood vessels, the outpouring of serum into the affected tissues, and an abnormally stimulated proliferation of these tissues. If this hypothetical toxin is in the blood it will show its greatest effects in that part of an organ where the supply of blood is richest. This is just what we do find in the skin, where the most decided lesions are found in the papillary body, which, as the nourisher of the overlying epithelial layers, is particularly full of blood.[12] The most likely place for the production of this toxin is, of course, the alimentary canal, supplied, as it is, with the complicated ferments of the human being himself, and also with countless numbers of ferments belonging to invading bacteria. The sore throat, the heavily coated tongue, the sluggish bowels and the rheumatic pains of such patients, as the case in hand, also point to the alimentary canal as the seat of the disturbance. In the chronic cases the alimentary disturbance is too slight to be clinically appreciable, but the success achieved by such antifermentative drugs as arsenic, bichlorid of mercury[13] and the salicylates, salol (phenyl salicylate[14]), salicin,[15] in both acute and chronic cases, is a further weighty argument in support of the theory that the disease is a toxemia produced by some ferment in the alimentary canal.

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ABSTRACT OF DISCUSSION

DR. D. W. MONTGOMERY, San Francisco: That lichen planus is a constitutional disease there is no doubt in my mind. This also is the conclusion reached by Engman in a paper which will shortly be published, and the proofsheets of which he showed me. The generalization of the eruption, its pruritic character and the internal distress it gives rise to, is greater than could be explained by regarding the disease as being one of the skin alone. The distress of the itching is much more acute than that of scabies or any of the parasitic diseases of the skin. And besides, the patient is "bothered" internally as well as externally.

Another point is the striking results obtained by the internal administration of drugs, such as the bichlorid of mercury,

8. Veiel, Fritz: Arch. f. Dermat. u. Syph., December, 1908, p. 383.

9. Dubreuilh, W.: Ann. de Dermat. et de Syph., February, 1906, p. 129.

10. Schütz especially mentions the complication of pneumonia and gives the literature: Beiträge zur Kenntniss des Lichen ruber, Arch. f. Dermat. u. Syph., xli, 255.

11. Fordyce: Jour. Cutan. Dis., February, 1899.

12. See remarks by G. B. Dalla Favera (Monatsh. f. prakt. Dermat., April 1, 1909).

13. Charles J. White (Jour. Cutan. Dis., November 1908) says that to vanquish the old disease lichen planus he makes use of the old drug, mercury, with great success, and attributes the result probably to the stimulating effect of this metal on the nutrition of cells.

14. After two weeks of ineffective treatment with arsenic, Hartzel found that salicylate of soda did well, especially allaying the severe itching. He also found that on giving salol on account of rheumatic pains in the knees, the cutaneous symptoms were relieved. Am. Med. Jour., July 20, 1907, p. 225.

15. Radcliffe-Crocker (Brit. Jour. Dermat., February, 1908, p. 47, advises salicin in lichen planus of the acute type.

salicin, aspirin and salol and, in some cases, arsenic; and this would lead one to suppose that these drugs act as eliminants of toxins, or that they destroyed something that produced toxins. The results of such treatment are all in favor of this being a constitutional disease. The same therapeutic effects are not so frequently observed in the more chronic, slower forms of the disease, because there is not enough toxin to produce these acute symptoms. Sometimes there is extensive lichen without itching, which shows that the patient does not react pruritically to the toxin, but does react papularily.

DR. JOHN A. FORDYCE, New York City: This paper recalled a case that I reported to the American Dermatological Association ten years ago, one of universal lichen planus, with death. In that case there were profound constitutional symptoms, with fever and chills and successive outbreaks of the eruption. The autopsy showed marked changes in the heart muscles, in the blood vessels and in the adrenals. There was marked pigmentation of the skin, which was almost black at the sites of eruption, and it occurred to me that it was possibly the involvement of the adrenal bodies that led to this pronounced pigmentation. The involvement of the mouth and vagina spoke in favor of the constitutional nature of the disease. The resemblance of this affection to syphilis and the fact that it yields at times to mercurials suggest that it may be due to a spirochete or at least to some organism of that nature. Another interesting point in connection with lichen planus is the fact that the lymphatic nodes are sometimes enlarged. I have frequently noticed this involvement in cases of lichen planus of the chest and abdomen.

DR. LOUIS A. DUHRING, Philadelphia: A number of points occur to me in connection with this subject, and to a few of these I wish to allude. The class of cases to which this belongs is familiar to me, and I recall one case referred to me by Dr. Tyson which was almost identical with the one described by Drs. Montgomery and Alderson. Judging from my clinical experience and observation rather than from what I have read, there are two distinct clinical types of cases which occur under the head of lichen planus. From the photograph shown, as well as from the description, I think that there could be no mistake about the diagnosis in this case. In one of the types of this disease the lesions assume a sluggish, chronic character, more or less gradually attacking certain regions or localities by preference. This type of lichen planus is well known; better far than that just described by the writers. In the first, chronic type the disease continues a slow course and behaves differently, and is also amenable to a different form of local treatment from the acute type. The lesions are usually angular and flattish, instead of acuminate or rounded, as in the acute variety.

The second type, of which the case just reported is an illustration, is the acute form. The eruption appears generally suddenly or rapidly, spreads slowly or quickly, and may be almost universal, if not entirely so. The pruritus is often intense, the lesions may not be at all flattened, and are apt to be acuminate, occurring for the most part over a large area. In addition to the pruritus, there are marked general symptoms, with great nervous excitation or depression. The nervous system is always at fault in these cases of generalized or diffuse lichen planus. In the treatment of this variety arsenic has usually signally failed to benefit, and has been distinctly inappropriate in many instances. In the case I have in mind, arsenic was not at all tolerated, as the stomach and digestive tract were much involved through depressed nerve force. After the condition of the stomach was improved by rest, hygienic and other measures, the arsenic was tolerated and may have aided in the recovery. I do not think it at all likely to confound this second form with syphilis, although the eruption may look something like it. Still, I have never seen any cases of this kind that could be confounded with syphilis. I desire to direct attention to this second acute generalized form of lichen planus, because I do not think it is so well understood as it should be. In the case I referred to, the gentlemen who saw the case before me did not seem to make the diagnosis and were disposed to regard the eruption as syphilitic.

DR. ERNEST DWIGHT CHIPMAN, San Francisco: It certainly seems that there is a definite resemblance in many instances between lichen planus and syphilis. I would like to record briefly a case that came under my observation several months ago; a case which was touched on by Dr. Alderson in his paper as having been pronounced lichen planus by two dermatologists, and in which the Wassermann reaction was subsequently obtained. The patient was a robust Italian, aged 35, who gave absolutely no venereal history. He had a generalized eruption, partially macular, partially papular, with intense pruritus. Here and there were seen evidences of lichenification, involving particularly the axillæ and the flexor surfaces of the elbows. The patient was seen by a confrère who made the diagnosis of lichen planus. I could not agree with him, although the eruption was suggestive of that affection. A Wassermann test was made and was strongly positive, and an examination of the contents of several of the papules showed the presence of spirochetes.

DR. GEORGE PERNET, London, Eng.: I have had several cases of acute lichen planus, and I agree that they are among the most troublesome cases that the dermatologist can have to deal with, especially on account of the tremendous pruritus and the depression of the nervous system. With regard to the distribution of the eruption in this case, I was interested to observe that on the anterior surfaces of the forearms it terminated rather abruptly. I have seen this in several cases, not only of acute lichen planus, but also in the stage of syphilis in which the eruption is not completely developed. In acute lichen planus it corresponds with the nerve distribution. In one case at the University Hospital the palms of the hands were severely involved, with marked swelling and hyperkeratosis. In the treatment, there is no doubt that salicin has almost a specific action in these cases. In acute or subacute lichen planus I think that arsenic in any form is contraindicated; in fact, in all skin eruptions of the acute or subacute type I have found that arsenic, which is so commonly prescribed in skin affections by men not conversant with dermatology, aggravates these cases very much indeed.

The appearance of the plasma cells in this case raise the interesting point that some of these acute conditions do lead to plasma cell formation. I have noticed in acute lupus erythematosus of sudden onset the presence of plasma cells in some of the sections.

DR. PHILIP KILROY, Springfield, Mass.: Apropos of the possibility of this affection being of syphilitic origin, as suggested by its pathology, I have had two indubitable cases of syphilis in which there was intense itching. I do not think there is any dermatosis that may not itch, and itch severely.

DR. HARRY E. ALDERSON, San Francisco: Of course, we considered the possibility of this being a case of lichen planus engrafted on a syphilitic basis. The finding of the positive Wassermann reaction, and certain rather atypical appearances in the histologic features seemed to point that way, but clinically there was no doubt about the diagnosis of the case. Every one will acknowledge that when the clinical evidence is sufficiently strong, it will outweigh the evidence given by the microscope. Of course, a careful search was made for the spirochetes with the dark-field condenser and by smear methods, and had they been present they would doubtless have been found. In the case mentioned by Dr. Chipman I was not aware that the spirochetes had been found.

Milk and Pasteurization.—M. J. Rosenau, in *Annals of Medical Practice*, states that harm has been done by the misleading use of the term "pasteurized milk." Popularly, this has been construed to mean a superior quality of milk in the sense that antiseptic surgery is a great advance on the old-time methods. "Pasteurized milk" really means heated milk and is not necessarily synonymous with "clean milk," "good milk," or "pure milk." The particular object of the heating is to destroy the harmful bacteria. In order to correct this misconception concerning pasteurized milk, it would be better to discontinue the use of the term and substitute therefor the name, "heated milk," stating the degree of heat and time of exposure on each bottle, as well as the date on which the milk was heated.

BROWN-TAIL MOTH DERMATITIS

REPORT OF A CASE *

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BROOKLYN

THE BROWN-TAIL MOTH

The brown-tail moth or *Euproctis chrysorrhœa* was one of the first insects destructive to fruit-trees to be described by entomologists. The moth is a native of Europe and is common in all parts, except the extreme north. It is said that it first invaded this country in 1892, infesting a small territory in the vicinity of Somerville and Cambridge, Mass., the method of introduction being the importation of some roses from Holland by a Somerville florist.[1]

It was not until 1897, however, that any scientific investigations were made concerning the insect in this country. At this date the Massachusetts State Board of Agriculture pursued a series of investigations to discover the insect causing the destruction of vegetation in and about the suburbs of Boston and proved the brown-tail moth to be the pest responsible for the trouble. The gypsy moth commission, which was at this time actively

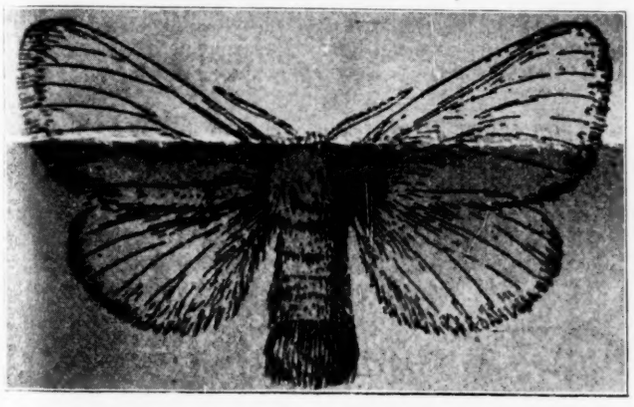

Fig. 1.—Female brown-tail moth.

engaged in the destruction of the gypsy moth, another pest, helped to limit the spread of the brown-tail moth also; but in 1900, when, owing to lack of appropriation, this commission was forced to discontinue its work, the moth marched rapidly onward in its destruction, traveling northward through New England into Canada.[2]

The brown-tail moth is an insect which feeds principally on the foliage of fruit trees. Its average size at full growth is about one and one-half inches in length. The head is a light brown color mottled with areas of a darker brown with reddish-brown hair scattered over the surface. The body is almost black in color, with many fine lusterless, orange or silvery gray spots scattered over it. Long, finely white branching hairs arise from the upper side of the lateral tubercles. The female is almost snow-white. There is a tuft of thick brown hair on the tail of the moth, most marked on the female. The hairs are brittle and easily detached. Both male and female are free flyers and strongly attracted by light.

The moth lays three or four hundred small round eggs thickly covered with brown hairs which are dislodged from the abdomen of the moth and adhere to the eggs. The eggs are laid in July and are generally deposited on the under surface of the leaves of fruit and shade trees, forming a mass about three-quarters of an inch in length and one-quarter of an inch wide. They are hatched in about a month and the young caterpillars, forming colonies, spent the rest of the season spinning their winter webs. At the beginning of cold weather they disappear within their nests, closing the holes behind them. Here they remain only partly grown until early spring, when they come forth and grow rapidly, eating the buds and young blossoms from the trees as they appear.

The caterpillar reaches its full growth some time in June. It is about two inches in length, light brown in color with a white stripe on either side. It spins a loose cocoon and goes into the pupa stage and the moths emerge about the middle of July.[3]

BROWN-TAIL MOTH DERMATITIS

Description.—The dermatitis produced by the brown-tail moth is of two types, mild or limited and severe or extensive. In the mild form the lesions appear first as erythematous macules, few in number and situated on the face, neck and arms, sometimes spreading to the chest and back. The lesions are characterized by itching of a varying degree, depending on the extent of the

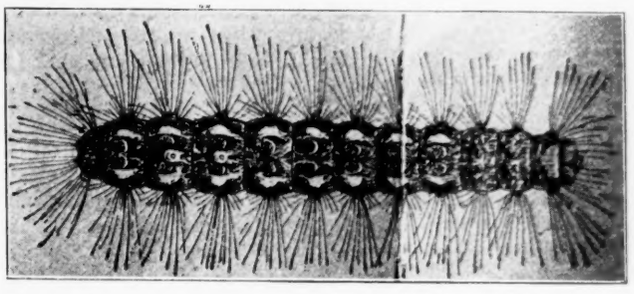

Fig. 2.—Full-grown caterpillar of brown-tail moth.

eruption, which at times is almost unbearable. The macule soon becomes urticarial in character, raised above the surface, firm in consistency and disappears on pressure. The wheals are about the size of a pea, discrete as a rule and remain from a few hours to a few days. The severe type of eruption is characterized by a much more intense inflammation of the skin, a confluency of the lesions and an increase in the intensity of all the symptoms. In exceptional cases eczema is superimposed on the dermatitis and the condition becomes proportionally serious, with thickening of the skin, exfoliation and fissuring in the joints. In prolonged and severe cases the general health is sometimes seriously affected by the loss of sleep and appetite and the disturbing pruritus.[4]

Etiology.—The lesions are produced by the tiny barbed hairs which grow on the caterpillar. The hairs are few in number during the early life of the caterpillar, but become more numerous as it reaches its full growth. These nettling hairs are straight, slender, needle-pointed rods having three rows of recurrent barbs, which average from four to five millimeters in

* Read in the Section on Dermatology of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

1. Meeks: Boston Med. and Surg. Jour., 1901, cxliv, 657.
2. Fifty-second Ann. Rep. Sec. Massachusetts State Board of Agric., 1904; Ann. Rep. Sec. Agric., Nova Scotia, 1908.
3. State Board Agric. Massachusetts: Nature Leaflet, No. 26, April 2, 1908.
4. White: Boston Med. and Surg. Jour., 1901, cxliv, 599; Towle: Boston Med. and Surg. Jour., Jan. 19, 1905.

length. The hairs are found on the moth and also in the structure of the cocoon, so that contact with the insect during any of its stages is liable to produce the disease. The hairs retain their irritating properties for a long time and the dermatitis has been caused by the handling of cocoons several years old. In the mild cases of poisoning there is generally a history of the removal of a caterpillar preceding the eruption, while the dermatitis of severe form seems to be contracted by the prolonged irritation of the skin from the hairs which become lodged in the clothing from the moths or cocoons.[5]

Pathology.—It was originally supposed that the irritation was purely a mechanical one caused by the inflammation under the skin of the peculiar barbed nettling hairs, but Dr. Tyzzer of Boston has practically proved by a most interesting series of experiments that the process is a chemical one. He has demonstrated that when the nettling hairs are mixed with a drop of blood the rouleaux of red blood corpuscles break down. The corpuscles become coarsely crenated; the crenations are then changed into slender spines and finally the corpuscles become spherical. The process does not, however, go to hemolysis. Further experiments show that the irritating properties of the hairs are destroyed when subjected to a dry heat of 115 C. and that they also fail to react with the red blood corpuscles, although the structure of the hairs is not destroyed even when heated to 150 C.

Prognosis.—The attack of dermatitis produced by the moth lasts from a few days to a week in the mild cases, but the severe form often lasts for six or seven weeks. The general health is not affected except in severe cases. Attacks recur whenever exposure to the poison takes place.

Treatment.—The affection responds readily to mild soothing antipruritic lotions or salves, except in the severe cases, when more persistent treatment of stronger remedies is sometimes required.

REPORT OF CASE

During the early fall of 1908 there was brought to my notice about sixty-odd cases of this disease occurring in the Annapolis Valley, Nova Scotia. The patients all gave a similar history as to the manner of contracting the disease and the course of the trouble. Most of the cases were of a moderately severe type and were contracted from the moth or the handling of cocoons. The following is the history of a severe case:

Patient.—R. W., aged 17, was a Canadian by birth and agricultural student by occupation. The boy's older brother had recurrent attacks of eczema from infancy until 5 years old, but had had no recurrence since and was now 20 years old. The father had had a number of attacks of ivy poisoning. The family history was otherwise negative. The patient had always enjoyed good health, but had thin, tender skin with a tendency to seborrheic dermatitis. Two years before the present illness he had a severe seborrhea of the scalp, losing a considerable amount of hair. The condition improved readily under treatment and he had since been free from trouble.

Present Illness.—This began in the summer of 1908, while the patient was engaged in picking cocoons from the fruit trees. The boy was first troubled with an itching of the arms and face. Shortly afterward he noticed small red spots appear on the same locations. The spots, he said, were not elevated at first, but soon became papular. The itching increased and the lesions extended to the neck, body, thighs, nates and legs. The itching became intolerable so that he was unable to sleep at night. He would often put on his clothes and walk for miles in the middle of the night. He applied home remedies without relief and his condition became steadily worse. When he presented himself to me for treatment his whole body was involved. The dermatitis was eczematous in character; the skin was intensely inflamed, hot, dry, harsh and thickened; the flexor surfaces were fissured and painful, and on removing the clothing a shower of fine exfoliating scales would drop to the floor. The patient's nervous system was greatly impaired from loss of sleep and persistent pruritus. He had lost some weight and his mucous membranes were pale and anemic.

Treatment.—The boy immediately discontinued his work. His underclothing was boiled thoroughly to prevent any irritation from hairs lodged therein. He was put to bed and wrapped in cloths saturated in sweet oil to which had been added 2 per cent. of phenol. The itching stopped almost immediately and the patient had a good night's sleep. In one week's time the exfoliation had ceased, the skin was more soft and pliable, less red and inflamed and the tenderness and itching had disappeared. The patient was now given zinc oxid ointment containing phenol and menthol. This was continued for four weeks with an occasional bran or soda bath when the skin had regained its normal condition and the patient felt perfectly well. He returned to his employment with instructions to be careful not to come in contact with the moth in any of its stages and has since been free from any trouble.

Very little reference has been made in the medical literature regarding the brown-tail moth. Dr. J. C. White,[4] in 1901, first reported a number of cases of dermatitis produced by a caterpillar. The type of eruption and the history of the disease was similar in all cases. Dr. Meeks[1] at this time asserted that the eruption described by Dr. White was due to the hairs of the brown-tail moth. Dr. Harvey P. Towle,[4] in 1905, gave an excellent account of the history of the moth and the eruption produced by it. Most of the cases he described, however, were of the mild type. Dr. Towle was convinced from his investigations that the irritation is a mechanical one due to the barbed nettling hairs.

The article[5] read by Dr. Tyzzer of Boston before the Dermatological Congress in 1907, besides giving a valuable description of the life history of the moth, proves without doubt that the irritation is a chemical one due to some poisonous substance contained within the hair.

5. Tyzzer: Tr. Sixth Internat. Dermat. Cong., New York, 1907, i. 169.

ABSTRACT OF DISCUSSION

DR. CLARENCE M. CASSELBERRY, Boston: Some years ago we had this plague in Boston, and most of the work that has been done on this subject has come from New England, so that we are naturally interested to hear the experience of others. I know that the devastations of these moths extended as far north as Canada and that they proved a terrible pest. Dr. Potter emphasized the fact that this dermatitis affected more particularly those who handled the cocoon. That may possibly be so, but it seemed to me that during the epidemic in Boston no one was exempt; people on the street who had never touched a cocoon became infected.

DR. WILLIAM A. PUSEY, Chicago: Dr. Potter has done the section a distinct service in bringing this subject before us. It is the first paper we have ever had on this subject. Two or three years ago we did not know what this form of dermatitis was. In the West we have thus far been exempt from it, but some of our Boston friends are prophesying that this brown-tailed pest will soon cross the Alleghanies, and we are at least glad to be forewarned.

DR. ALFRED POTTER, Brooklyn: I did not mean to give source of the infection. The severe cases are the result of constant irritation and the hairs from the moth and cocoon which become lodged in the clothing produce this prolonged irritation, whereas the caterpillars are brushed away as soon as they are noticed, and the infection is, therefore apt to be less severe.

the impression that it was the cocoon only that was the

IODODERMA BULLOSUM HÆMORRHAGICUM*

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NEW YORK

Though Jarisch[1] asserts that the pemphigoid eruption occurs not infrequently from iodin and Thiberge[2] speaks of it as not very uncommon, both the recorded cases and every-day experience show it to be rare. Most instances have been seen in patients affected with renal or cardiac disease, or both; and the connection between the two conditions is apparent when we remember that iodin is chiefly and rapidly excreted by the kidneys. Most of the cases, also, have been rapidly fatal, the iodic intoxication, in combination with the visceral lesions, leading to speedy death. Thus in Wolf's case[3] a patient affected with both cardiac and renal disease took 30 grains of potassium iodid daily; for some time there was a very abundant bullous eruption, and the patient died on the eight day. Polland[4] had a patient affected with chronic nephritis, who took 1 gram of sodium iodid daily for ten days. A bullous eruption appeared on the face, neck, and hands; death occurred in a few days; and the autopsy showed the presence of bullous lesions on the gastrointestinal mucosæ. That the drug has an injurious effect on the vessel walls is shown by the rather frequent occurrence of iodic purpura.

A hemorrhagic bullous eruption necessarily betokens a systemic reaction of the intensest kind to the drug. Its rarity is evidenced by the fact that I have been able to find only three recorded cases.

CASE 1.—Reported by Morrow.[5] The patient, a man, aged 70, had taken about 200 grains of iodid of potassium in three days when a pustulo-bullous eruption developed on the face. The iodid was continued for ten days, till 900 grains had been taken. Sanguineous bullæ appeared on the face, hands and forearms. There was great prostration, stupor and involuntary evacuation of urine, this latter being acid, 1010, and containing 10 to 15 per cent. of albumin, a few pus and blood cells, but no casts. There was mitral insufficiency. Improvement of the skin eruption took place under carbolized petrolatum for twenty-six days; the general condition was unchanged; ten days later there were involuntary evacuations, and death occurred from edema of the lungs. Autopsy showed dilatation and enlargement of the left heart, mitral insufficiency, atheroma of the aorta, edema of the lungs, and chronic granular nephritis. The skin eruption reached its height five days after the iodid was discontinued.

CASE 2.—Reported by Hallopeau and Lebret.[6] This case had been presented to the *Société de dermatologie et de syphiligraphie* by Du Castel in 1896, 1899 and 1901 for hemorrhagic efflorescences on the limbs following the administration of iodid of potassium; the patient was a hereditary syphilitic. On August 7, 1903, for a recrudescence of his trouble, he was given 45 grains of iodid; the next day hemorrhagic bullæ developed on his hands. While the further history of the patient is not given, he presumably recovered from the attack. There is a cast of the eruption in the Baretta museum.

CASE 3.—Reported by Russell.[7] A man of 68, suffering from chronic rheumatism, was given iodin to the amount of 15 grains in three days. There appeared a large bullous eruption, especially on the face, the blebs containing a bloody fluid. The oral mucosa showed the same lesions, most of which ulcerated. Death occurred on the tenth day from "pneumonia and inanition." This patient had had only very small doses of iodid of potassium in syrup of the iodid of iron; yet by the third day of the medication he had coryza, conjunctivitis, hemorrhagic bullæ on the face, scalp, neck, breast, arms and legs, some as large as a quarter of a dollar, blebs and ulcerations of the lids, nares and mouth, etc.

To these I add a fourth case, seen in the service of Dr. Evans, of the City Hospital.

CASE 4.—*Patient.*—Bernard T., aged 45, admitted to Ward 2, City Hospital, New York, Aug. 18, 1898, was moderately alcoholic; had typhoid fever twenty years before admission; syphilis eight years before admission; he said he had had twelve attacks of "malaria" in the last eight years, accompanied by some jaundice; for the last ten years he had had some dyspnea and precordial pain on exertion. Three months before admission he began to feel weak, and lost his appetite; had headache, and jaundice.

Examination.—On admission the patient was found to have a pulse of 72, temperature 100, respirations 34, blood pressure 100; he was moderately jaundiced, and somewhat apathetic; no rigidity, pupils normal; lungs clear; heart showed a systolic murmur at the apex and over the aorta. The abdomen was soft, containing no masses; the liver not enlarged; the spleen not palpable; no edema; knee-jerks normal. Urine: 1022, alkaline, and contained hyaline and granular casts. Red blood cells, 5,100,000; white blood count, 11,700. The diagnosis was not certain, but inclined toward uremia.

Course of Disease.—The apathy gradually increased, and by September 8 the patient was semiconscious only. There appeared to be some left facial paralysis; and this, with the gradually increasing somnolence, the presence of suspicious scars on various parts of the skin, and the patient's history on admission, led to the suspicion of the presence of a gummatous brain affection, and on October 24 he was put on the iodid of potassium in doses of 100 grains a day. On the 25th, after he had taken his first 100 grains, a few small "blood blisters" appeared on the left hand and on the left side of the neck. There was also some conjunctivitis. By the 29th the blisters on the neck were retrogressing, and there was a marked iodin acne of the face. Small hemorrhagic vesicles appeared on the backs of both hands and forearms, and these increased in size and number rapidly. By October 20, there being no improvement in the patient's condition, the iodid was stopped; he had then taken some 600 grains altogether; and at that time photographs were taken from which the accompanying illustrations were made. The patient was quite somnolent, but could be roused; he had involuntary evacuations; and besides the lesions on the backs of the hands to be described, he had a few bloody vesicles on the neck and on the legs. On the backs of both hands were a number of variously sized and shaped tense bullæ; most of them were over the second phalangeal joints of the fingers. The smallest and most recent were pin-head to pea-sized acuminate vesicles, purplish in color, and with a distinct erythematous areola. The larger and older ones formed tense hemispherical or elongated bullæ an inch or more in size. They were of a peculiar purplish red color, especially at their bases, and with a whitish or milky aspect at their tops, evidently due to the epidermis. Puncture of the bullæ evacuated a non-coagulating blood-like fluid, which under the microscope showed the presence of red and white blood cells. There were no eosinophiles in this fluid; and the chemical test for iodin in it was negative. During the next few days these bullæ increased very much in size and became confluent; new ones appeared, and finally the entire backs of the hands were covered with immense confluent sanguineous blebs. Some of these ruptured, leaving extensive excoriated and readily bleeding surfaces behind; and others became infected and purulent. Toward the end the entire backs of the hands and forearms were one large raw surface. A few fairly large bullæ of precisely similar nature appeared on the face and legs. By November 7 the stupor deepened, and on November 10 the patient died comatose. It is worthy of note that there was not a single bulla or vesicle on the palms, and that, while there were a very few hemorrhagic bullæ on other parts of the skin, as noted above, the entire brunt of the dermal explosion was on the backs of the hands and the forearms.

Autopsy.—This showed many lesions of the internal organs; in fact, the patient was in the condition of many of those who

* Read in the Section on Dermatology of the American Medical Association at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

1. Hautkrankheiten, 1900, p. 126.
2. La Pratique dermatologique, ii, 484.
3. Berl. klin. Wchnschr., quoted in Lancet, Oct. 23, 1886.
4. Monatsh. f. prakt. Dermat., 1905, xl., 285.
5. Morrow: Drug Eruptions, William Wood & Co., 1887, p. 129.
6. Hallopeau and Lebret: Ann. de dermat. et de syph., 1903, p. 826.
7. Russell: Med. Rec., Aug. 12, 1903, p. 207.

come to spend their last hours in the great charity hospital. The immediate cause of death, as reported by the pathologist, was edema of the lungs, though the house record says nothing of this. The essential disease of which the patient died was syphilitic cirrhosis of the liver; but besides this he had hypertrophy of the left ventricle; dilated mitral ring with regurgitation; fatty degeneration of the heart muscle; emphysema and terminal edema of the lungs; chronic interstitial splenitis; atrophy of the suprarenals; chronic degenerative nephritis; chronic interstitial pancreatitis; enlarged abdominal lymphatic glands; chronic peritoneal and pericardial adhesions, and smooth atrophy of the larynx; not to mention a number of less important changes and degenerations. In spite of the official postmortem designation of the liver disease as the cause of death, the medical men who observed the patient during his last illness were of the opinion that the patient died of uremia.

Iodin, as is well known, is one of the most rapidly absorbed and excreted of medicaments. All the mucosæ take it up very quickly; and so does the skin under proper conditions, as Welander[8] and Hirschfeld and Pollio[9] have shown. Lang[10] has demonstrated iodin in the blood from one to ten minutes after its ingestion, and a little later in the saliva, and still later in urine, gall and milk. In one hour it has disappeared from the blood; in twenty-four hours it has almost gone from the secretions, though a little of it may remain for weeks, to be slowly excreted by the kidneys. Any serious obstacle, therefore, to the rapid passage of the drug through the organism must lead to its accumulation in the tissue fluids.

Fig. 1.—Author's case of iododerma bullosum hæmorrhagicum. Photographed three weeks before death.

It is generally held that the effects of the iodid medication, therapeutic and toxic, are due to the free iodin that is liberated in the blood from the various compounds employed. The exact manner in which the change occurs is still unsettled; but it seems probable that the theory of Binz[11] is the correct one; that in the presence of oxygen in the blood and carbonic acid in the tissues a salt such as potassium iodid is transformed into potassium carbonate and iodin is set free. At all events, free iodin is demonstrably present in the blood and acts as an irritant to the cells with which it comes in contact, exactly as it does to the dermal and mucosal cells when applied externally. Sajous[12] holds that the iodin is taken up by the leucocytes and irritates the intima of the vessels, causing their contraction and thus increasing blood pressure. This does not, however, to my mind, satisfactorily explain the marked vascular symptoms of acute iodism; and I am more inclined to agree with Thin,[13] who recognizes a distinctly disorganizing effect of the iodin on the epithelia of the blood vessels. The various dermic iodic reactions, the acne with its limited edema and congestion, the pemphigus with its effusion of serum and formed blood elements, the purpura with its extravasation of blood, the congestion and hypersecretion of the various mucosæ, the hemorrhages from the internal organs, etc., are all explainable in the same way.

The main avenue of iodin excretion being the kidneys, organs with a capillary circulation perhaps the most extensive and complicated in the body, and the free iodin itself having a directly deleterious influence on the small vessels themselves, it is not strange that the renal system should be an early sufferer from the iodin

Fig. 2.—Cast, taken three weeks before death.

poisoning. I have made it a practice for a long time past to have regular urinalyses made in patients undergoing the iodid treatment, and I have noted the fact that in most cases, even in young and otherwise healthy individuals, there were signs of renal irritation at times. Patients without a trace of nephritis previously showed albumin in varying amount and hyaline casts at times. In fact, I think it desirable to keep track of the urine when administering an intensive iodin course, and to decrease or stop the exhibition of the drug when the excretion shows that the renal functions are being seriously interfered with. I am afraid also that I have seen a number of cases of permanent damage to the kidneys that I have been unable to ascribe to anything but the iodin medication.

If the healthy kidney is liable to be injured by iodin the drug has naturally a still more deleterious effect when that organ is already damaged. Here there is a

8. Welander: Arch. f. Dermat. u. Syph., July, 1901, p. 63.
9. Hirschfeld and Pollio: Brit. Jour. Dermat., 1905, p. 163.
10. Lang: Vorlesungen über Syphilis, p. 532.
11. Binz: Rev. d. sc. méd., v, 485.
12. Sajous: The Internal Secretions and the Principles of Medicine, 1907, ii, 1160.
13. Thin: Med.-Chir. Tr., lxii, 199.

true vicious circle; the damaged emunctory prevents the normally rapid excretion of the drug, so that it is kept in prolonged contact with the tissues; and the irritant drug still further injures the excretory organ. The intimate relationship of iodism and chronic nephritis has long been recognized, and has been insisted on by many writers, among whom Duckworth asserts that iodin is dangerous in these cases, George Johnson notes the frequency of severe iodism in Bright's cases, and Stewart says that there is abundant proof that the more kidney elimination is hampered the greater the danger of iodism. Ehlers, as the result of his experimental work, comes to similar conclusions. The great majority of cases of severe iodism, the cases with bullous and hemorrhagic eruptions, have occurred in patients suffering from renal insufficiency.

144 West Forty-eighth Street.

ABSTRACT OF DISCUSSION

DR. F. C. KNOWLES, Philadelphia: During the past two years I have had the opportunity of seeing at the Pennsylvania Hospital two cases of simple purpura caused by the internal use of the iodids. The cause of the eruption was proved by the fact that, after the drug was discontinued and the eruption had disappeared, it reappeared after the use of small doses.

DR. GEORGE PERNET, London, Eng.: I agree with Dr. Gottheil that bullous eruptions after the administration of the iodids are rare. I cannot recall any case of the hemorrhagic type like the one he described. Potassium iodid is frequently given in much too large doses, and without any reference to the state of the kidneys. Of course, potassium iodid is of itself a diuretic, and even small doses may at times do harm. Certainly some of the heroic doses are really not indicated.

DR. WILLIAM A. PUSEY, Chicago: During the past year I have had a fatal case of the same sort, and a more desperate picture of disease I have never seen. The patient was admitted to my service at the Cook County Hospital without diagnosis, but my interne, who had seen one or two similar cases during the previous month, made the diagnosis. The patient was a woman who had taken moderate doses of potassium iodid—so far as we could determine, from 7½ to 10 grains three times a day. When admitted, she presented hemorrhagic bullæ which would become blackish in color and flaccid. Then the base of the ulcer would become gangrenous, and from the sides of the ulcer a small bullous collar three or four inches in diameter would develop. Iodin was recovered from the patient's urine. She lived six or seven days after I saw her, and about ten days after the first history of the eruption. Dr. Charles J. White of Boston has reported an almost identical case.

Recently I was asked to make a diagnosis in a case in which the diagnosis of congenital syphilis had been made. This patient, a child, had hypertrophic lesions, and syphilis could be readily eliminated because of the distribution of the lesions. There were no lesions about the mouth nor buttocks. The eruption was distinctly different from that of syphilis, and there had been large ulcerative lesions, as shown by the scars. In that case the child, a nursing baby, had received the iodin through the mother's milk. In this case also, iodin was recovered from the urine. The child died in a few days with bronchopneumonia but really from the iodism.

DR. W. S. GOTTHEIL, New York City: In the City Hospital in New York, which is the great venereal center for this part of the country, the tradition still holds that it is necessary to give enormous doses of iodin, in some instances from 750 to 800 grains daily, and we think we get good results from this. In one case I gave 1,000 grains daily, and when I was interne I can recall a case of gumma of the brain in which as high as 1,200 grains daily were given. I would simply emphasize the advisability of keeping close watch on the urine while giving potassium iodid, especially if the dosage is large.

THE WET DRESSING IN SURGERY *

CHARLES A. PARKER, M.D.
CHICAGO

In our eagerness to avail ourselves of the many new and sometimes very promising announcements in surgical progress it is well not to discard too lightly older methods and principles founded on long-established and successful usage. Into the field of treatment in recent years the hyperemia of Bier and the vaccine therapy of Wright have entered as active participants for our favor in the care of infectious processes. So prominent a position have they occupied that frequently other methods have been completely overshadowed, to the serious neglect and injury of the patient. With no desire to detract from all the demonstrated and promised virtues of these newer methods of treatment, I do wish to preserve the wet dressing from even the momentary neglect that threatens it and to place it in the proper rank to which its broad range of usefulness and long record of success entitle it.[1]

Of course, any method of treatment will suffer undeserved censure when ignorantly or improperly used. Surgical measures are most efficient in the hands of a surgeon, a knowledge of surgical conditions and processes necessarily forming the basis of treatment. The automatic dressing has not yet appeared.

Little that is new can be said in support of so well known a measure; but, in view of its importance and the absence of any recent comprehensive review of the subject, it appears particularly apropos to present it now on its own merits and in relation to other measures that its present adherents may be even more firm in their faith and its future usefulness greatly extended. Continued experience with surgical material convinces me that it is not so generally employed as it should be.

DEFINITION

By the wet dressing is meant the simple form of surgical dressing consisting of plain sterile absorbent gauze, wrung out of sterile water or physiologic salt solution, covered with an impervious tissue, as paraffin paper, oil silk or gutta percha tissue, and held in place by a bandage. The gauze is usually wrung out of warm water and applied in several layers over the affected part, and is then covered with the impervious tissue, which extends beyond the margins of the gauze, so that when the bandage is applied the moisture in the gauze can not evaporate and the dressing will be as wet the day after as the day it was applied. The gauze is usually wrung as dry as possible by the ordinary means in the dressing room. When thus applied to a secreting wound it very readily absorbs the secretion, a property wholly lacking in a saturated dressing. Powders are unnecessary, nor need various aromatic and odious preparations be applied. Plain sterile water or physiologic salt solution is preferable to antiseptic solutions for moistening the gauze.

ILLUSTRATION OF USES

In Lacerated and Contused Wounds.—These wounds are of various degrees, from the crush of the boy's finger in the cogs of his "Irish Mail" to the loss of a limb in a railway accident. Taking the finger for an example, the

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1. Since preparing this paper two interesting complementary articles on allied subjects have appeared in recent journals. One is by H. G. Wells on "The Resistance of the Human Body to Cancer," in THE JOURNAL A. M. A., May 29, 1909; the other is by Simon Flexner entitled "Natural Resistance to Infectious Diseases and its Reinforcement," Popular Sci. Monthly, July, 1909.

tip is lacerated, the nail may be lost and the bone broken. With surgical cleanliness the hopeful parts are laid together, possibly stitches placed for better control of the fragments, and the whole put up in a wet dressing. Within the next twenty-four hours, when the dressings are removed, the parts not too severely crushed have regained much of their color, while the necrotic portions soon become manifest. Every living bit of tissue has a chance to live and grow, and the facility with which the dressing is removed is a revelation.

The finger is again similarly dressed and redressed till the last slough has separated and the epithelial covering is complete. The same dressing is equally applicable to and indicated in the crushed limb or similar wounds occurring elsewhere in the body. In wounds of deep tissues and organs, where dressings in general are either not directly applicable or are not desirable, the use of the wet dressing is also equally limited by the same restrictions. As a matter of fact, these deep wounds are under the influence of the natural heat and moisture of the tissues, though frequently lacking in facilities for relief of irritants and tension.

In Local Infections.—The common infections of the hand serve as useful illustrations of its application in pyogenic infections. These include the various classes of panaritia, or felons, palmar infections—intra- and extra-thecal—and the lesions of bones and joints. Suitable operative or mechanical measures having been instituted, the best local application is the wet dressing. Take, for instance, the simple painful paronychia, or ungual panaritium—the so-called "run-around" of the nail—frequently resulting from an infected hangnail. Pus is commonly in evidence, but the hard and dry skin clinging firmly to the nail keeps up the pressure and the symptoms; or, the pus may be discharging somewhat around the nail, but periodically drying up and clogging its own exit, causing the exacerbation of symptoms. The wet dressing applied to this finger in the one instance softens the tissues around the nail so that the pus escapes, while in the other it keeps the parts moist so that occlusion does not occur—in either case favoring the healing and relieving the symptoms. Necessary operative measures should be employed when indicated. What has been said of the hand applies with equal force and pertinency to the foot and to infections in all other equally accessible parts of the body, varying the technic according to local conditions.

Wounds in General.—In general, the wet dressing is indicated in the treatment of all open wounds or tissues deprived of their normal epithelial covering. Infected wounds of the subcutaneous or deeper tissues when incised become open wounds and are treated as such with the necessary modifications for drainage. It exerts a distinct and favorable influence on the processes of inflammation, frequently limiting and occasionally completely controlling local pyogenic processes without drainage. Here, however, is the greatest danger in this, as in other measures, that it will be used exclusively, instead of an adjunct, as it is designed to be. Aseptic areas deprived of their proper skin covering, as in incomplete plastic operations or similar surgical procedures, are best protected by this dressing. It is equally well adapted to the treatment of infected areas with suppurating or discharging wounds, as in many forms of ulcer regardless of type or origin, though not unmindful of collateral surgical and specific measures variously indicated. It is not indicated in aseptic surgical wounds where the tissues are completely covered with skin, the proper protection of the soft tissues.

MODE OF ACTION AND SPECIAL FEATURES

Its therapeutic efficiency depends on its physical features, which will be considered in detail in connection with its method of producing results in the various surgical conditions to the treatment of which it is best adapted.

Its Absorbing Capacity.—The removal of excessive or irritating secretions from a wound must be an attribute of a good dressing. Naturally, dry gauze will absorb more fluid than already partially saturated material. The practical difference, however, is not so great, as experiment shows that the wet gauze well wrung out absorbs at least three-fourths as much fluid as the dry. One ounce of dry gauze will absorb four ounces of water. When this is wrung tightly in the hands it will weigh two ounces and will absorb three ounces more of water, showing just three-fourths the absorbing capacity of the dry gauze. Under compression in an ordinary dressing the limit of absorption is somewhat reduced in both.

The important fact is that the wet dressing continues gradually to absorb to saturation, while in the dry one the secretion, unless excessive, commonly becomes inspissated and impervious a short distance from the wound, thus effectually preventing further absorption by the gauze outside the area of dried pus and blood. On the removal of a properly adapted wet dressing all the secretion comes away with the dressing, and the wound is left clear of fluid débris. Maltreated wounds and ulcers covered with various medicaments and secretions become clean with a few dressings, when the actual condition of affairs first becomes apparent. A scab never forms under a wet dressing, and one already present is soon loosened and the fluid allowed to escape. It is a prompt and ideal method of cleaning a large ulcer preparatory to skin grafting.

Heat and Moisture.—These are the most important physical factors in biology. Without moisture cell growth is impossible, while a temperature near that of the body is necessary for best development. Next to the skin itself, the wet dressing furnishes the ideal condition for cell growth. The temperature of the wet dressing, whether put on warm or cold, soon remains near that of the tissues with which it is in contact, the impervious covering preventing evaporation and dissipation of the heat acquired. A scab is not formed and the tissues are always moist with serum or the isotonic salt solution, further conditions favoring maximum growth of granulations and epithelium. Owing to this condition, mechanical drainage can be reduced to a minimum or dispensed with entirely, as the edges of the wound do not readily adhere after incision and the slight pressure of retained secretions easily opens it. The ease and comfort with which this dressing can be removed from a raw surface or inflamed region are in themselves no small blessings. It requires no tedious and anxious soaking to remove, nor does it bring away such large portions of new and precious epithelium and granulations as are lost in the removal of the dry dressing.

A refinement in its application may be introduced here that seems to be the limit of conservation of these tissues. Narrow strips of gutta percha tissue are laid directly on the granulations and new epidermis in gridiron fashion, or at right angles to each other, till the parts are just sufficiently covered to prevent the wet gauze as it is usually applied from actually touching them. The strips of rubber tissue are commonly one-fourth of an inch wide and long enough to cross the

area, the object being to prevent the tissues entering the meshes of the gauze and being torn with every removal. The narrow strips are to be used instead of one large piece covering the whole area, as in the former good drainage of all secretions is maintained from the margins of the many strips, while retention is the rule with the single piece. With this refinement all the other elements of the wet dressing, the wet gauze and the external impervious covering, remain the same. In routine work this special feature is often neglected with little difference in results, as it is but a minor factor in the process, though in some chronic and obstinate cases it decisively turns the tide toward success.

To heat and moisture are the special virtues of the wet dressing chiefly due. Their mode of action deserves further consideration. The growth and repair of tissues are fundamental functions; they are part of the phenomenon of life, and to their maintenance proper nourishment and environment are the most essential factors. The dressing most nearly furnishing these essentials is the one of choice. Nourishment for the tissues comes from the blood and is principally in the form of nutritive lymph or serum. No artificial or other fluids can equal these for the purpose, and the best that can be said of any such fluids in or on the surface of the tissues is that they are bland or they do no harm. Thus, from the standpoint of nourishment, local applications have no practical value in surgery, their proper sphere being the improvement of environment.

The local lesion may result from various forms of tissue insults, mechanical, chemical, bacterial, and others. The local treatment consists in removing the aggressive factors and providing the best possible environment for the living tissues in their efforts at repair and resistance against further injury. The lesions from which the aggressive factors can be completely and directly removed are the simplest to care for, prompt growth and repair of the remaining living tissue being the rule. If the wound be closed the skin conserves the best physical condition for growth in the nutritive lymph. In the open wound this protection is lacking. The lymph is present, but desiccation soon renders it inert and destroys many cells in the exposed area. These elements eventually form a scab and prevent further destruction, cicatrization progressing successfully beneath. From various causes the scab is frequently incomplete or broken and some of the tissue continuously exposed to desiccation and destruction. Here dressings must be applied to prevent desiccation and maintain proper temperature while inhibiting trauma and infection. A well-adapted, non-irritating, impervious covering fulfills most of these requirements.

Excepting the intentional wounds of aseptic surgery, the vast majority of lesions requiring local dressings are of an infectious nature and often difficult to handle. These are the ones that demand the most of our attention, and measures that are practical and effective in their treatment deserve our confidence and support in direct proportion to their curative properties. Bacteria and their products are the aggressive factors here, and their treatment by other means than complete and direct removal or disinfection—in which case they become aseptic lesions—is the treatment under consideration.

Action of Antiseptics.—In some specific infectious lesions, medicinal substances entering the general circulation exert distinct local curative influences. A study of the best known and most efficient antiseptics will throw much light on the specific action of the group in general in local applications. Foremost among them are the salts of mercury, of which the bichlorid is the one most used. Its direct efficiency under favorable conditions and its limitations in the presence of serum and pus are generally well known. In a 1 to 1,000 aqueous solution it prevents the growth of anthrax spores in from 3 to 7 minutes, while a 1 to 10,000 aqueous solution kills the bacilli in 6 seconds. A 1 to 1,000 aqueous solution kills the *Staphylococcus pyogenes aureus* in from 1 to 5 minutes, though in the presence of serum, pus or fat it is rendered ineffective in much stronger solutions. A 1 to 2,000 solution in dressings frequently excites a pustular dermatitis in previously healthy skin, and a 1 to 10,000 solution in irrigation causes local cellular necrosis on exposed tissues.[2] Thus it does not meet the conditions prescribed, that it shall destroy or inactivate the bacteria without injuring the tissues containing them. Other salts of mercury are equally wanting in this particular attribute.

Phenol (carbolic acid), its related products and derivatives, iodin and its preparations, and the various formaldehyd combinations used as antiseptics, are all more or less bactericidal, but none of them limit their injurious action to the bacteria alone; to effect their purpose they destroy the tissue and thus also fail to reach the prescribed standard. The eligible substances must pass through the vital juices between or within the cells to the sheltered bacteria and produce their specific effects without disturbing the function of the lymph or the integrity of the cells.

The physical and vital relations of the bacteria and tissues being so intimate, the one being hidden in the interstices of the other and both depending on the same pabulum for their nourishment, the achievement of such a desired result could ensue under but two possible conditions: either that the agent exert a selective action on the bacteria, or that their resistance be so much below that of the tissues that they succumb to a weak solution that is harmless to the latter. Many experiments by competent observers now render it extremely doubtful if we have a single chemical antiseptic possessing these attributes.[3] Such selective substances may eventually be evolved for local use as are now used through the circulation, as vaccines, antitoxins, etc. As the effects obtained by applied irritants increasing the local reaction, phagocytosis, etc., are not specific in their nature, though often desirable in practice, the bacteria being only secondarily or indirectly affected, this process is not to be considered in the present relation. The intelligent use of antiseptics in preparation for operative work, or with the knife and cautery where the sacrifice of some living tissue occurs in the effort at stimulation or direct disinfection to save the rest, is, of course, not interdicted. The ultimate defense of the tissues through local measures designed to directly affect the contained bacteria being at present impracticable, if not impossible, means favoring the protective power of the tissues themselves, on which reliance must eventually be placed, thus become of first importance.

2. Halsted: Kelly's Operative Gynecology, first edition.

3. Verhoeff and Ellis, of Boston, in summing up an article in THE JOURNAL A. M. A., June 29, 1907, say: "Our results seem to justify the belief that no non-irritating antiseptic can be effective in the presence of serum. . . . No chemical antiseptic can destroy micro-organisms within the tissues without injury to the latter." Sir Almroth E. Wright, London, in THE JOURNAL A. M. A., August 10, 1907, in an article on the opsonic theory, says of local antiseptics: "The antiseptic will directly antagonize the protective forces which the living organism has at command, it will paralyze the phagocytes and will abolish the anti-bacterial power of the blood fluids. This is not all; it injures the histologic elements and in particular the capillaries, leading to an outpouring of lymph, which not only washes away the antiseptic, but when the skin is in question converts it into a lymph-sodden envelope easily penetrated by bacteria."

EFFECT OF HEAT AND MOISTURE ON BACTERIA

The query naturally arises as to the effect of heat and moisture on the growth of the wound bacteria, as these physical conditions are quite as essential and favorable to the growth of micro-organisms as to that of the tissue elements. The immediate effect is a mechanical one, like irrigation, the bacteria free on the surface of the wound or floating in the serum being disseminated by the fluid throughout the capillary gauze. The diffusion is rapid and continuous until the gauze is saturated, the result being a great reduction in the number of free bacteria in direct relation with the wound and a corresponding diminution in the contained toxins. Growth may occur in the dressings on the nourishing wound secretions, but with their frequent renewal this growth is quite a negligible factor, as it is no longer associated with the wound itself. There are yet to be considered the bacteria remaining in contact with the wound and those within the tissues.

Intramural Bacteria.—These bacteria are beyond the direct mechanical as well as the direct bactericidal action of any safe application, and are affected solely by the tissue reaction, either normal or artificially stimulated.

Intermediate Bacteria.—There is a sort of middle or intermediate region between the free surface bacteria which are readily removed by fluid diffusion in the dressings and the intramural bacteria just mentioned, where bacteria are present in the most superficial layers of the exposed tissues, in the cells and their interstices, enjoying all the beneficence of applied heat and moisture while at the same time exposed to a diminishing degree of tissue aggression among the advanced guard of superficial cells and altered serum. The dead and dying cells and defective serum furnish a rich pabulum in which the bacteria may develop rapidly with the least antagonism on the part of the tissues. This is the region of advancing granulations and will remain the one of greatest bacterial accumulation and growth. When the accumulation exceeds certain local limitations the excess becomes superficial and is removed, or intramural and is antagonized, an automatic arrangement that confines this accumulation to rather narrow and definite limits. The bacteria that become intramural are subject to the same influence as others of their class, the much larger number that become superficial from the absence in this direction of tissue resistance are removed and cause no further trouble, the constantly changing original zone still remaining the center of active growth and distribution.

In closed infections greater extension of the bacteria into the tissues is favored by the absence of a free surface and diminished tension toward which growth preferably occurs. In some virulent types of infection, as hydrophobia, malignant edema, etc., and other infections in profoundly altered states of tissue resistance, the dissemination of the bacteria and their products is so irresistible that a differentiation into these several zones from the standpoint of local applications becomes practically useless.

Fortunately, however, these are not the ones with which we most frequently have to deal. These three zones are influenced by the local dressing, and their control is commonly the control of the infection. The superficial, we have seen, is controlled by the mechanical action of the wet dressing; the intramural depends on the resistance of the tissues; while the intermediate is subject to both influences, their combined action eventually eliminating all bacteria during the healing.

EFFECTS OF COLD

Although practically all pathogenic bacteria grow best at or near the body temperature, most of them continue to grow at temperatures both above and below this point, and the more common ones, particularly the pyogenic, have a range of many degrees compatible with existence and development. The tissues, however, are very susceptible to changes of temperature beyond comparatively narrow limits. A reduction of a few degrees in the local temperature will seriously reduce the resistance of the affected tissues, while the bacteria will continue to develop with only a slightly diminished virulence in a practically non-resisting field with a result easily foretold.

Thus it is with cold as with the bactericides, the inhibiting influence on the bacteria is more than offset by the injurious effect on the resisting tissues. Whatever salutary influence cold may be considered to exert on the inflammatory process, it certainly should not be ascribed to any direct action of the cold on the bacteria. Excessive heat is equally prejudicial to tissue resistance. Doubly disastrous is the effect of cold when it also produces characteristic circulatory changes, further reducing the vitality of the tissues by diminishing the quantity of blood.

While heat and moisture do most favorably influence bacterial development, at the same time they secure for the tissues the highest degree of efficiency in executing their aggressive or conservative action in the ultimate struggle with invasion. It is not to be presumed that any dressing will increase the resistance above nature's normal, or the greatest degree of resistance the tissues can offer to invasion without themselves suffering injury or loss of integrity. If that can be reached, or as near as may be approached, the best possible local aid has been given. Were the virulence of the bacteria under the stimulus of heat and moisture to increase *pari passu* with the resistance of the tissues, apparently nothing would be gained by the process. While ordinarily such an increase is quite improbable, it *is* true that the tissue cells start with the decided natural advantage of self-protection, so that the dressing that best conserves this advantage is the most meritorious.

This is the gist of the whole matter: that which interferes with bacterial development depresses the tissues; that which favors the tissues favors the bacteria; but, as every victory that has ever been won over invasion has ultimately been won by the tissues, reason suggests and experience proves that the dressing that keeps the inherent advantage of the tissues in the highest possible physiologic condition is the one most favorable to healing. From the foregoing considerations it is my belief that the wet dressing most nearly fulfils these requirements and furnishes the nearest approach to the ideal condition for the healing of the extensive class of surgical conditions for which it has been suggested.

LIMITATIONS AND MODIFICATIONS

The wet dressing is not a panacea nor is it without faults. Aside from the evils arising from its use to the exclusion of other indicated surgical measures, it may have unpleasant effects in its usual employment. These are more particularly its macerating effect on the skin and occasionally resulting dermatitis. When it is desired to employ a wet dressing over a long period of time, or under unfavorable local conditions, the previous application of a protective salve to the surrounding region usually overcomes all difficulties, the condition resembling that of the protective vernix caseosa in

the liquor amnii. Occasionally alternating the wet and the dry dressing, part of the time one and part of the time the other, is a satisfactory solution of the problem; and when the irritating effect becomes more serious than the condition it was intended to allay it is naturally interdicted entirely. In practice these objections and contraindications seldom occur, and the occasion is exceedingly rare when it can not be used advantageously during the period when its influence is most desired.

100 State Street.

THE EXPERIMENTAL PRODUCTION OF THE MATERNAL PLACENTA

AND THE FUNCTION OF THE CORPUS LUTEUM *

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In former work I have shown that it is possible to produce at will any desired number of maternal placentas or deciduomata in the guinea-pig, if we make incisions into the uterus at a certain period after ovulation. Here I shall report on the continuation of my work[1] without, however, attempting to go into any details or to give definite figures.

1. In the beginning I may state that the experimental production of the maternal placenta depends primarily on three factors: first, on a chemical sensitizing of the uterine mucosa; second, on an additional mechanical stimulus applied to the uterus, and, third, on a certain condition of the body fluids of the animal.

2. In my former publication I described only the changes produced in the guinea-pig after incisions made into the sensitized mucosa. Since then I have carried out similar experiments in rabbits and I find that in the rabbit it is also possible to produce the maternal placenta experimentally. But while in the guinea-pig the newly formed structures somewhat resemble the adrenals, in the rabbit the experimental maternal placenta is differently built. Here usually no distinct tumors are obtained, such as we find in the guinea-pig, but the histologic changes are very marked; they consist in proliferation of the surface epithelium leading often to giant-cell formation, in the production of nests of glycogen cells in the uterine papillæ and in a plasmodial transformation of many uterine blood vessels, changes also noted in the normal placenta of the rabbit. These results enable us to analyze the factors leading to the building up of the maternal placenta and to state that these structures are produced independently of any specific action of the ovum, because experimentally they can be produced, without any previous contact with the ovum having taken place. I have not yet succeeded in reproducing Minot's monster cells or the multinucleated glycogen cells. At present, therefore, we can not exclude the possibility that these latter structures may owe their origin to a specific action of the ovum.

It will be of great interest to use these methods for the analysis of the formation of the placenta in other mammalians.

3. In my former publication I stated that after extirpation of the ovaries the formation of the maternal placenta takes places only in a small minority of all cases and that in the few positive cases the resulting deciduomata are very small. Since then I have continued these experiments and in a large series I have noted that the only tissue in the ovaries which is concerned in the production of the sensitizing substance is the corpus luteum. Even after extirpation of the corpora lutea small deciduomata may be produced in a small minority of cases; and in one experiment, indeed, I found a pregnancy to be established notwithstanding the absence of the corpora lutea (which was in every case proved by examining the ovaries in serial sections). The few positive results obtained after the removal of the corpora lutea are in all probability to be ascribed to the fact that in my experiments the lutein tissue was removed several days after ovulation and at that period a partial sensitization of the uterine mucosa may very well have taken place already. In future experiments it will be necessary to remove the corpora lutea or the ovaries very soon after ovulation before the specific substance has been formed, and in such cases no maternal placentas ought to develop after subsequent incision into the uterus.

4. I have, therefore, been able to ascribe a definite function to the corpus luteum, namely, that of supplying a sensitizing substance to the uterus which prepares the latter to respond with the production of the maternal placenta, if an external stimulus of a mechanical nature is added. A number of investigators, especially Born and Fraenkel, believed the corpus luteum to be indispensable for the attachment of the ovum at the surface of or inside the uterine mucosa and consequently also for the initial stages of pregnancy. Furthermore, the periodic function of the corpus luteum was believed to be responsible for menstruation and other sexual processes. No definite proof for these hypotheses, however, has been given so far; and the experimental evidence was, on the whole, unsatisfactory. My investigations led to an exact method of experimentation which permitted us to determine definitely the function of the corpus luteum, namely, that of supplying a substance which sensitizes the uterus and thus enables it to produce the maternal placenta.

5. In order to correlate the functions of the corpus luteum and the formation of the maternal placenta it was necessary to study the growth and the retrogression of the corpus luteum in the guinea-pig. Only a few data of interest may be mentioned here. The corpus luteum in the guinea-pig is formed principally through a transformation of the granulosa cells of the follicle.

6. The formation of the corpus luteum follows the spontaneous rupture of the follicle (ovulation) which usually takes place approximately six to ten hours after copulation. But ovulation with the subsequent formation of corpora lutea may take place independently of a preceding copulation. Such a spontaneous ovulation usually occurs in the mother inside the next ten hours after the young have been born; it also occurs in many cases spontaneously—approximately nineteen to twenty-four days after a preceding ovulation without the pres-

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* Read in the Section on Pathology and Physiology of the American Medical Association, at the Sixtieth Annual Session, at Atlantic City, June, 1909.

* From the Laboratory of Experimental Pathology of the University of Pennsylvania.

1. In regard to this work, see the following articles:
Loeb, Leo: The Production of Deciduomata, THE JOURNAL A. M. A., 1908, L. 1897.
Ueber die experimentelle Erzeugung von Knoten von Deciduagewebe, etc., Centralbl. f. allg. Path. u. path. Anat., 1907, xviii, No. 14; Die Erzeugung von Decidua in d. Uterus des Kaninchens, Arch. f. Entwcklngsmech. d. Organ, January, 1909, xxvii; Zur Analyse der Wachstumsbedingungen des mütterlichen Teiles der Placenta beim Kaninchen, Arch. f. Entwcklngsmech. d. Organ., 1909, xxvii; Ueber die Bedeutung des Corpus luteum, Centralbl. f. Physiol., November 3, 1909, xxiii; The Formation of the Corpus Luteum in the Guinea-Pig, THE JOURNAL A. M. A., 1906, xlvi, 416. For a review of the literature concerning the corpus luteum see Birnbaum, R.: Sammelreferat, Ztschr. f. allg. Physiol., 1908, viii.

ence of a male. But such a spontaneous ovulation without a preceding labor and without a previous copulation does not take place in every case. Under ordinary conditions the corpus luteum grows actively for approximately eighteen days; then a spontaneous degeneration and retrogression sets in. In the case of a concomitant pregnancy, however, the period of retrogression is deferred considerably and only begins sixty days after copulation or later.

7. Although the life and growth of the corpus luteum lasts, therefore, usually eighteen days, and much longer in the case of pregnancy, the uterus is not sensitized during the whole of this period, but only approximately from the second to the ninth days after copulation. If the mechanical stimulus of the uterus is applied after the ninth day, the uterus does not usually respond with the formation of a maternal placenta. This may perhaps be due to the fact that within nine days after copulation the uterus becomes saturated with the sensitizing substance and that, after such a state of saturation has been reached, fatigue sets in and the uterine mucosa becomes unresponsive. It may be that only a dynamic process, namely, the constant addition of the corpus luteum substance, has a sensitizing effect. However that may be, this curious relation between corpus luteum and uterine mucosa exists and is easily interpreted in a teleologic sense in the following manner:

8. We see that the uterus is sensitized approximately three to nine days after copulation. If we wished, therefore, to select the safest period for the egg to attach itself to a sensitized uterine mucosa and to be sure to be welcomed at its new habitat, and to find a responsive environment, we would choose the middle of this period, namely, approximately the sixth day after copulation, and this is precisely the term at which under normal conditions the ovum does begin to enter the uterine mucosa in the guinea-pig.

We have here an example of a highly useful adaptation, most important for the propagation of mammalians, and we, furthermore, recognize the fact that this adaptation is based on a biochemical correlation between different organs.

9. In this connection I may briefly mention a few other facts concerning the life-history and the possible function of the corpus luteum. The retrogression of the corpus luteum sets in apparently spontaneously at the period mentioned above; it is not dependent on nor is it caused by a preceding new ovulation and the formation of a new corpus luteum. The retrogressive changes in the corpus luteum set in even without the previous rupture of a follicle.

On the other hand, in a number of cases I found that an early extirpation of the corpora lutea led to an acceleration of the following ovulation and consequently to an earlier formation of new corpora lutea. This observation suggests that the existence of growing corpora lutea has an inhibiting effect on the growth and rupture of ovarian follicles. Such an inhibiting action does not, however, consist in a mechanical influence exerted by the corpus luteum, inasmuch as the follicles rupture as soon as the retrogressive changes set in in the corpora lutea, although the site of the corpus luteum and, therefore, its mechanical significance has not yet changed at that time. It is, therefore, a justifiable hypothesis, if we assume that the functional, probably chemical activity of the corpus luteum is one of the factors determining the time of the rupture of the follicle and the subsequent formation of the new corpora lutea. Such an influence of the corpus luteum is, however, not the sole determining, but only a concomitant factor in ovulation; it would explain why during pregnancy a further rupture of follicles usually does not take place.

10. At present we do not know why the spontaneous rupture of follicles is followed by the formation of a corpus luteum. Two years ago I carried out a number of experiments, in which at various times, preferably near the period of ovulation, I made incisions into the ovaries, in order to open follicles and thus, if possible, produce corpora lutea experimentally, but in no case did I succeed. The cuts in follicles were not followed by the formation of corpora lutea. These experiments I intend to take up again. Perhaps some variations in the technic may give positive results, but at present it appears as if only at certain periods and under certain conditions the opening of a follicle would lead to the formation of a corpus luteum.

11. Three factors are, as stated, primarily concerned in the experimental production of the maternal placenta: (1) the sensitizing substance of the corpus luteum; (2) the mechanical stimulus exerted directly on the uterine mucosa; (3) the character of the body fluids, which is more or less specific for each individual of a certain species.

It is, however, possible to make a more far-reaching analysis of these phenomena and to reveal quantitative relations between the causative factors and the size of the deciduomata.

I mentioned above that sometimes after extirpation of the corpora lutea, deciduomata develop, which, however, under those conditions were usually very small. This can best be explained if it be assumed that a relatively small quantity of this corpus luteum substance enables the mucosa merely to form small deciduomata.

In a similar manner incisions made into the uterus inside of the first forty-eight hours lead usually only to the development of small nodules, and probably for the same reason; at that period after application of the mechanical stimulus, when the uterus begins to react, only a relatively small quantity of the sensitizing substance had been secreted and had had time to unite with the uterine mucosa.

12. Definite quantitative relations exist also between the mechanical stimulus and the size of the maternal placenta.

The volume of the deciduomata grows in direct ratio to the area of the uterine mucosa exposed by the incision. The direction of the incision is, therefore, of importance and, furthermore, it is found that the deciduomata are very small in cases in which the incision had been made near the tubal end of the uterus, inasmuch as such an incision renders possible the exposure of only a very small area of the uterine mucosa.

13. Of the three factors concerned in the development of the maternal placenta, the sensitizing substance of the corpus luteum shows the highest degree of specificity, while the mechanical factor is the least specific, inasmuch as its place can be taken by an apparently totally different process, namely, the insertion of the ovum.

It is, therefore, not to be wondered at that even the stimuli always present in normal tissue life have some effect in exciting certain reactions in a uterine mucosa which has previously been sensitized by the specific substance of the corpus luteum. In experiments in which I prevented the ova from entering the uterine cavity after ovulation I found, indeed, that even with-

out a preceding incision at a certain period after ovulation, when the uterine mucosa has been sensitized, certain predecidual changes take place normally and rhythmically, leading in the guinea-pig to the appearance of many mitoses and to a myxomatous condition in the connective tissue, and in the rabbit to an amitotic division of the epithelial nuclei.

Here, again, a quantitative relation is seen between exciting conditions and the extent of the changes produced. The normal stimuli of tissue life are quantitatively very much inferior to the experimental incisions and to the insertion of the ovum and lead, therefore, only to the beginning of placental changes.

14. The experimental facts just mentioned may explain the difference in the structure of uterine and tubal mucosa in the guinea-pig. The former is very rich, the latter is very poor in cells. Correspondingly we find that the uterine mucosa can be sensitized by the corpus luteum substance, while, as we shall see later, the tubal mucosa in the guinea-pig can not be sensitized.

This process of sensitizing enables the connective tissue of the uterine mucosa to proliferate periodically, to be more or less in a rhythmic condition of growth, while the tubal connective tissue is resting. After cessation of sexual activity the uterine mucosa must become atrophic, being no longer under the influence of the sensitizing substance of the corpus luteum.

These observations enable us, therefore, to correlate structural differences between the mucosa of the uterus and the Fallopian tube with certain dynamic biochemical differences, namely, difference in the ability of certain tissues to combine with the sensitizing substance provided by the corpus luteum.

15. The substance which is produced in the corpus luteum and which sensitizes the mucosa of the uterus has a specific affinity to the uterine tissue. In a number of experiments I made incisions into the peritoneal wall, into the ovaries, into the Fallopian tubes of the guinea-pig, into the subcutaneous tissue, and I transplanted skin in animals at the critical period, but in no case did I find any unusual reaction in these tissues, none of these tissues or organs having become sensitized.

This is especially noteworthy if we consider that apparently the ordinary connective tissue is the same everywhere in the body.

This specific affinity of a certain chemical substance could be explained, however, if we assume that the identity of the different connective tissues of the body does really not exist, or, as an alternative, we could refer the specificity, not to the connective tissue, but to the surrounding epithelium, of which we know that it differs in structure and, therefore, in metabolism from other epithelial structures. The connective tissue would then receive the stimulus only through the intermediate action of some other cells.

16. This specificity which is established experimentally clears up another related problem.

On the basis of many experiments I can state that in the guinea-pig it is impossible to produce at will an extrauterine tubal or abdominal pregnancy. The ovum which after fertilization is prevented from attaching itself to the uterine wall perishes without forming an embryo.

We are now able to state why an extrauterine pregnancy is impossible in the guinea-pig: Neither the tube nor the peritoneal lining nor the ovarian tissues are able to produce the maternal part of the placenta in response to the stimulus of the ovum touching the uterus, and without a maternal placenta the egg is unable to develop.

In man we occasionally do find such a response in the case of tubal pregnancy; here the specificity in the fixation of the corpus luteum substance is less marked than in the guinea-pig.

17. I have already stated in a former communication that it is possible to obtain growth of the decidua in a piece of uterine tissue which is excised and transplanted into the subcutaneous tissue of the same animal. This proves that the formation of the placenta does not stand under the regulative influence of the central nervous system, and probably not of local nerves, it being very unlikely that such peripheral nerves and ganglia cells would functionate after transplantation of a small segment of the uterus. In the large majority of my experiments the pieces were transplanted several days after ovulation; therefore, at a time when the sensitizing of the uterine tissue in all probability had already taken place. Such experiments, therefore, do not prove that the sensitizing takes place through a chemical agency carried to the uterus through the circulation and not through the nerves. In two cases, however, in which the transplantation was done within the first twenty hours after ovulation and in which, therefore, in all probability the uterine tissue has not yet been sensitized before transplantation small deciduomatous areas formed in the transplanted uterus. This indicates that the sensitizing substance is carried from the corpus luteum to the uterus through the circulation and that it is not transmitted through the nerves.

18. But is it possible to obtain a decidua in the transplanted uterus only after transplantation into the same animal? I have so far not been able to obtain the formation of a well-developed decidua after transplantation into a male guinea-pig. In a large series of experiments I exchanged the uteri in animals which were known to be at the same period after ovulation, in animals therefore, in both of which the sensitizing substance was present. Notwithstanding this equality of conditions there was a notable difference in the results. After transplantation into the same female the number of deciduas formed in the various experiments was greater and the size of the deciduas was larger in the positive cases. These experiments I intend to extend still further. But at present it is very likely that the body fluids are different in the different individuals of the same species and that this difference is of importance for the cell growth and that at least some tissues show a specific adaptation to their individual body fluids and that such an adaptation becomes especially apparent in certain conditions of unusual functional activity. This result is a further confirmation of my former findings, according to which certain tumor tissues remain alive after transplantation into the individual in which they originated, but die after transplantation into other individuals of the same species.

19. We see that in the transplanted uterus a decidua can be produced under the conditions valid in the case of the untransplanted uterus.

Where and from what kind of cells does the decidua form in the transplanted uterus? Do the invading connective-tissue cells of the host tissue become converted into decidua in contact with the uterine structures? In examining the uterus at various stages after transplantation, it becomes apparent that not only the trans-

planted glands remain alive, but also the connective-tissue cells in the neighborhood of the glands, and precisely at this place, the deciduomata are formed; we have therefore, sufficient reason for believing that the connective tissue of the transplanted tissue of the host gives origin to the deciduomata—just as in tumor transplantation, sarcoma and carcinomata arise from transplanted cells and a new infection of the host cells does usually not take place.

20. It will not be necessary here to discuss the bearing which these experiments have on the analysis of tissue and of tumor growth, as I have done this at some previous occasions. It may suffice to state that I have here been able to demonstrate the interaction of various sets of factors which all have to participate in a quantitatively determined way at stated periods in order to produce a growth which differs from the ordinary regenerative and bears some resemblance to tumor growth.

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ABSTRACT OF DISCUSSION

DR. MAXIMILIAN HERZOG, Chicago: The work done by Dr. Loeb is interesting, and it is probable that it will give us an important clue to some of the fundamental principles underlying placenta formation. Those pathologists who have had a chance to study very early placenta formation in some of the lower animals and in the human species have been struck by the fact that it presents the paradigm of two important pathologic processes—viz., of malignant tumor formation and of inflammation. The former is represented by the trophoblast, which invades the maternal tissues in the same manner as a malignant tumor invades the tissues in which it grows. The latter is represented by the decidua, which gives us the picture of a tissue in profound acute inflammation. It has been my good fortune to obtain a specimen of a very early human ovum *in situ*, and I first presented a preliminary report of it to the Seventh International Congress of Zoology, held in August, 1907, in Boston. In my preliminary report I stated these facts and gave it as my opinion that some of the changes produced in the maternal tissues are not due merely to the mechanical insult of the penetrating ovum, but to an enzyme secreted by the trophoblast. Dr. Loeb believes that the changes, as he has produced them experimentally in animals, are due to the trauma plus a sensitizing substance secreted by the corpus luteum. If I understand him correctly, the corpus luteum in guinea-pigs is formed by the zona granulosa. This is not true in human beings, in which it is formed partly from the theca interna and partly from the theca externa. I believe that the hypothetical enzyme that causes the decidual change in the maternal tissues is furnished by the trophoblast. We find some support for this belief in the observations first made by Bonnet and Marchand, that the syncytium surrounding the trophoblast has a complete lining of cilia. Such a lining is ordinarily found in secretory epithelial cells.

One word as to the terminology: I believe that it is not correct to speak of these decidual formations as deciduomata and to classify them as tumors, because I do not think that they are true tumors, and do not suppose that Dr. Loeb considers them as such. From what I have learned and seen of Dr. Loeb's investigations I believe that these experimental decidual masses should be looked upon as inflammatory hyperplasias. We know from human pathology that there is hardly any structure in the body in which inflammatory hyperplasias are more common than in the uterine mucosa. It seems to me that in the case of Dr. Loeb's experiments in guinea-pigs we have a sensitizing of the mucosa by an enzyme; and the traumatic insult, in combination with the former, causes an inflammatory hyperplasia.

DR. H. GIDEON WELLS, Chicago: The development of the placenta has peculiar interest from the general standpoint of biologic chemistry, from the fact that we have developed in a comparatively short space of time an organ equipped for carrying on complex metabolic processes. The work of Bergell has shown that the placenta is more than an organ for regulating diffusion of substances to and from the offspring—that it is intended for carrying on a considerable portion of the metabolism of the growing fetus. I have had occasion to study the purin metabolism of the human placenta, and have found that the placenta is endowed with the same enzymes common to other tissues of the adult human being; and also that among the purins there is a large proportion of hypoxanthin, whose presence is an indication of a high degree of metabolic activity going on in the tissues. Those tissues not actively carrying on nuclear metabolism have most of the purins in the form of adenin and guanin. The active tissues have large quantities of hypoxanthin, and I find that the amount in the human placenta is quite large in proportion to the other purins.

DR. M. J. ROSENAU, Washington, D. C.: How does Dr. Loeb account for the fact that these placental formations do not occur in human beings following surgical operations, which certainly occur in certain cases at favorable times following corpus luteum formation.

DR. LEO LOEB, Philadelphia: Dr Herzog seems to assume that the corpus luteum in man originates through proliferation of the cells of the theca interna and externa. I do not believe, however, that he will be able to produce sufficient evidence for his conception. The difficulty of the corpus luteum problem is that only in a few animals has a good study of the development been made. Sobotta showed that if we take animals the age of whose corpus luteum is known it can be demonstrated that it is derived, not from the theca interna or externa, but almost entirely from the granulosa. He found it in the rabbit and white mouse, and I found it in the guinea-pig. Until an equally thorough investigation shall have been made in man we can assume that the origin of the corpus luteum in man is the same as in animals.

As to the enzymes of the trophoblast, there is great likelihood that it contains some proteolytic and, perhaps, some other enzymes. No definite study, so far as I know, has been made of it, however. That the enzymes of the trophoblast have any formative action on the placenta, however, has not been shown; and there is practically no evidence in favor of this. In the course of my investigations I found that the ovum acts in a way similar to incisions in the uterine wall. That the trophoblast represents the stimulating part of the developing ovum is quite improbable, inasmuch as under the influence of the ovum the decidua begins to form before the trophoblast has been formed. Without the sensitizing action of the corpus luteum the ovum is, in the large majority of cases (probably in all cases), unable to cause a production of a maternal placenta; after early extirpation of the corpora lutea the ovum is no longer able to call forth the development of a well formed decidua in almost all cases, as I have shown experimentally.

I would not advise classing these deciduomata as inflammatory hyperplasias, as Dr. Herzog recommends; because if we do that we shall have to call the maternal placenta an inflammatory hyperplasia, and I do not see any advantage in doing that. To some extent I sympathize with Thoma, who wanted to do away entirely with the term inflammation, as being confusing. In this case the term inflammatory hyperplasia would certainly be actively out of place, as there is no inflammation in a properly conducted experiment. As to the relations of these experimentally produced new formations to tumors, I can in the main refer to my former articles.

In answer to the question of Dr. Rosenau as to why deciduomata are not found in patients after surgical operations I would say that I have little doubt that if pathologic examinations were made at the proper time changes characteristic for human maternal placenta would be found.

Physical Exercise in Schools.—In the public schools there should be not only systematic physical exercises, which should be given in close connection with the instruction in physiology and hygiene, but there should also be the largest possible amount of muscular activity in connection with all studies.—W. E. Garrison, in *Hygiene and Physical Education.*

CANCER CYSTS OF THE BREAST AND THEIR RELATION TO NON-MALIGNANT CYSTS *

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New problems and new responsibilities accompany all surgical diseases when they appear for treatment at an earlier stage of the disease than hitherto. Accumulated experience demonstrates that surgical interference of any kind promises better immediate and ultimate results when this procedure is instituted at a period in which the diagnosis is most difficult. This is especially true of tumors and is well exemplified in tumors of the breast.

Pathologists are less interested in gross and cellular pathology to-day than formerly, because investigations as to the etiology of disease along the lines of gross and cellular pathology have been about exhausted or have reached their limit of evident usefulness. Pathologists, therefore, are more and more interested in experimental pathology and physiologic chemistry. Surgeons, I am convinced, will become more and more interested in the gross and cellular pathology of the diseases that they are called on to treat, because this knowledge is of practical importance. It does not seem a good plan to have one set of men make the diagnosis and another institute the treatment.

I can exemplify these new problems and responsibilities very clearly by a discussion of cysts of the breast. If every tumor of the breast was seen by the surgeon within a few hours or days after it was first felt, very rarely would that surgeon be able to make the diagnosis as to the nature of the tumor from the examination. The diagnosis would, therefore, have to be made by exposing the tumor so that its gross or cellular features (from a rapid frozen section) could be studied.

It appears to me that the responsibility of the surgeon is very clear: he should be his own pathologist. But I am confident that for a number of years in many clinics surgeons will still desire to have pathologists present at the operation to make for them the diagnosis from the frozen section.

These remarks, therefore, in regard to cysts of the breast are directed to surgeons who wish to make their own pathologic diagnosis, or to pathologists who are called on to assist surgeons in the diagnosis of surgical diseases.

I wish, however, to repeat that clinicians will find it incumbent on them to keep pace with that knowledge of physiology and pathology which practical surgery and medicine require for diagnosis and treatment.

Among surgeons there are various views in regard to the method of making a diagnosis when it is impossible or doubtful clinically. Some cut down on the tumor and make the diagnosis from the gross appearances; others, in addition to this, cut out a small piece for an immediate frozen section. It is this method that I prefer—the direct exploration of the tumor. After a time a surgeon can train himself to dispense with immediate frozen sections except in rare instances. In my experience, after one has had a sufficient training, the diagnosis from the gross appearance is easier and undoubtedly quicker and, in many cases, more certain than from a *rapid* frozen section.

Other surgeons prefer to cut the tumor out locally and then cut into it and make a frozen section. This method, it seems to me, has greater dangers of dissemination than the former. But I have had no experience with it, and, therefore, can not speak authoritatively. In my experience, direct exploration of the tumor, if followed at once by the indicated operation, has practically no dangers, even though the disease be malignant. One can, of course, recognize the advantages of this method if the lesion is benign.

Other surgeons expose the lesion, cut out a piece, or cut out the tumor, close the wound and then wait a day or two for a careful microscopic diagnosis based on a carefully prepared section. This method, from the standpoint of the pathologist, is undoubtedly the best, but from the standpoint of the patient and the surgeon the worst. I have had sufficient experience with the results of this method, from tumors and tissues sent to me for diagnosis, to know that in the large majority of cases it has proved fatal in tumors in which, from an experience based on the other methods, one would regard a cure as probable.

With the evidence which I have been able to accumulate I feel that there is no doubt as to which is the best method. The diseased tissue must be exposed directly and the diagnosis made at once, either from the gross appearance or from the rapid frozen section.

For this reason I would urge pathologists who are associated with surgical clinics to be present at the operations, so that they may see the gross appearance of the diseased tissue as well as the histology from the frozen section. And, in addition to this, before they make a diagnosis, they will find that knowledge of the clinical history will prove of value.

The responsibility of a diagnosis in many of these cases is a very great one: life often depends on it; unnecessary mutilation may be saved by it. From my own experience I am convinced that the careful association, in rapid sequence, of the clinical history, examination of the gross appearance and frozen section will be more valuable in the diagnosis than any one of these alone. When the surgeon is his own pathologist he has all the evidence; the pathologist, unfortunately, asks for and gets the cellular picture alone.

It is my opinion that the pathologist will be more helpful to the surgeon if he would but study the clinical and the gross as well as the histologic aspects of the surgical lesions that he is called on to diagnose.

A diagnosis at an operation is an entirely different thing from the diagnosis at an autopsy. The knowledge that a diagnosis can be made at an operation in the majority of cases should be disseminated, so that a surgeon will be discouraged from assuming the responsibility of operating on such lesions unless he is prepared himself to make the diagnosis, or unless he has connected with his clinic a pathologist who can.

Of breast tumors in the surgical clinic of Professor Halsted of the Johns Hopkins Hospital, 31.5 per cent. were benign. Among these benign lesions 25 per cent. were simple cysts, 5 per cent. papillomatous cysts, and 1 per cent. galactocele, or a cyst due to chronic mastitis. Over 30 per cent., therefor, of benign lesions are cystic. With but few exceptions, cysts appear during the cancer age. Among the carcinomas, about 25 per cent. are cysts, about equally divided between the cancer cysts and the malignant papillomatous cysts.

To about every hundred benign cysts there are about twenty-five malignant cysts. Therefore, if malignancy is not recognized in almost 20 per cent. of cases of cyst, malignant disease will be improperly treated. If the cancer operation is performed in every case of cyst four women will be unnecessarily mutilated in every five operations.

* Read in the Section on Pathology and Physiology of the American Medical Association, at the Sixtieth Annual Session, at Atlantic City, June, 1909.

This lesion—a cyst of the breast—exemplifies the new problem and the new responsibility which I brought out in the beginning of this paper.

CANCER CYSTS

I have notes on fourteen cases in the surgical pathologic laboratory. In seven (50 per cent.) the tumor was clinically benign, and the diagnosis had to be made, when the cyst was opened, from the contents, or from the character of the wall, or from a frozen section of the wall. In five of these seven cases the diagnosis was not made until a stained section had been studied in the laboratory.

The study of these cases allows one to give a gross description which is so characteristic that one familiar with this picture should not make a mistake.

In six of the cases the contents of the cyst has been *hemorrhagic*. Up to the present time I have never observed blood in a smooth-walled cyst, except when associated with carcinoma in the wall. The benign papillomatous cyst may have hemorrhagic contents, but when there is no papilloma to explain the presence of blood the cyst should be treated as a carcinoma. In the remaining eight cases the contents, although not hemorrhagic, have been so granular, up to almost solid grumous material, that one could be certain that there must be a malignant epithelial tumor in the wall.

The diagnosis of a cancer cyst can, therefore, be made from the contents. In many of these cancer cysts one can see or feel with the knife or finger the carcinoma in the wall. In some cases the carcinoma is only a small nodule situated in one portion of the wall of the cyst, while in other cases it is found diffuse in the entire wall. As I am interested in presenting chiefly the picture which will allow a diagnosis, I shall not discuss the etiology of cancer cysts. When the wall of the malignant cyst has been moderately smooth and it has been difficult to recognize in the only moderately thickened wall any evidence of carcinoma, the contents have always been hemorrhagic.

In making the diagnosis of a cancer cyst from the frozen section the surgeon must remember that he might remove a piece from the non-cancerous area. In another possibility it might be difficult, except to one with considerable experience, to differentiate the cancer cyst from certain changes in the wall of a perfectly benign cyst which will be discussed later. There are chiefly two—an area of chronic interstitial mastitis in the wall and a small adenocystic area of senile parenchymatous hypertrophy.[1] I will discuss this more in detail under simple cysts.

The point that I wish to illustrate and to emphasize is that I believe that the diagnosis of a cancer cyst can be made with greater certainty from the gross appearance of the contents than from a rapidly frozen section of the wall.

The most recent case of cancer cyst which I have observed was that of a patient operated on before the Clinical Society of Surgery at its recent meeting in Baltimore (April, 1909). I did not feel justified in performing the cancer operation in this case. The tumor, of two weeks' duration in a woman of 43, was evidently a cyst, but the palpation of the tissue outside the wall of the cyst made me feel that I was dealing with a rare cancer cyst, because it reminded me of the first cancer cyst which I had observed with Dr. Halsted. In exploring this cyst no change whatever was found in the fat; the exposed cyst wall, before it was incised, had the smoothness, thinness and bluish color of a benign cyst. But when I opened this cyst the non-hemorrhagic contents were so granular that I was convinced of its malignant nature. On putting my finger into the cyst I could feel a little cancerous nodule in the opposite wall. In this case a frozen section of the wall through which I opened the cyst would have shown no carcinoma. To get a piece of tissue from the part of the wall that felt carcinomatous would have been difficult, and in my opinion dangerous, because in cutting through at this point one would have opened into the space between the breast and the pectoral muscle. The complete operation for carcinoma was therefore performed without obtaining a piece for frozen section.

BENIGN SIMPLE CYSTS

The cancer cyst must be differentiated from the benign simple cyst, and this differentiation (to repeat) is of great importance, because for the benign cyst in many cases excision of the cyst alone is sufficient, or, at the most, excision of the breast. It is rather interesting that among seven of the cancer cysts, clinically benign, in five the disease was not recognized at the first operation and the cyst only was removed. On the other hand, in about 100 cases of simple cyst the cancer operation has been performed in 16. Sixteen women, therefore, were unnecessarily mutilated, while in five among the cancer cysts the probabilities of a permanent cure were very much reduced by an operation in two stages. In fact, only one of these five patients was cured.

I have discussed elsewhere with considerable detail a disease of the breast which I have called senile parenchymatous hypertrophy. This lesion presents itself in two forms: with one or more cysts, as first described by Billroth as chronic cystic mastitis, and an area of hypertrophy in which large cysts do not develop; this second form has been called Schimmelbusch's or Réclus's disease. I have ventured to designate it as the adenocystic type of the aforesaid hypertrophy.

The type in which one or more cysts develop must be distinguished from the cancer cysts, while the adenocystic type must be differentiated from adenocarcinoma. This latter differentiation requires greater experience, as it is much more difficult both in the gross and frozen section.

This disease, especially the type in which cyst formations predominate, is, in my experience, a distinctly benign lesion. Among 106 cases of which I have records carcinoma has never been observed, and among about 500 carcinomas of the breast in only two instances have I observed cancer and a simple cyst present in the same breast. Among these 106 cases in two instances I have noted carcinoma in the opposite breast.

The disease, therefore, can and should be treated conservatively by those who are able, with absolute certainty, to make the differential diagnosis. If the surgeon on whom the responsibility for the operation rests has any doubt I would distinctly urge that the cancer operation be performed.

The conclusion that this hypertrophy is a benign lesion is based on the following observations:

In six cases no operation was performed. In two there was but a single palpable tumor, in three there

1 Bloodgood: Surg., Gynec. and Obst., 1906, iii, 721.

2. Bloodgood: Surg., Gynec. and Obst., 1906, iii, 721; Am. Jour. Med. Sc., 1908, cxxxiv, 157; Kelly and Noble's Gynecology and Abdominal Surgery, ii, 180.

were multiple tumors in one breast, and in one there were multiple tumors in both breasts. These six cases have been followed, and in four, in which more than three years have passed since the examination, the tumors have disappeared. In one case it is thirteen years since the first observation of the patient.

In twenty-seven cases the cyst and a zone of breast tissue were removed. In all but three there was, clinically, but one tumor, and this single tumor was explored for diagnosis. In three cases the diagnosis was rather positive, because there were multiple tumors in both breasts, and one or more were excised because of discomfort.

In the three patients with multiple tumors I had the opportunity to observe the ultimate result. One, a patient of my own, was operated on twelve years ago; within three years the shot-like nodules disappeared, and they have not returned. In the second case it is six years since the operation, and I am informed that the patient has had no further trouble. The third is a recent case.

Among the twenty-four patients who presented, clinically, but a single tumor and from whom at operation only the cyst and a zone of breast tissue was removed, there has developed not a single example of carcinoma, and at the present time but two have developed other cysts. The first was a patient of my own, operated on now almost ten years ago, for a cyst in the upper and outer quadrant of the left breast; five years later she returned with a similar cyst in the upper and inner quadrant of the same breast; the cyst was removed. To-day both breasts are normal. The second case is a recent one, and I have just been informed that a tumor has developed in the other breast.

I am of the opinion that these observations over a period of now more than ten years in carefully studied cases justify the conclusion that conservative means can be employed without risk for benign simple cysts of the breast, provided the surgeon or pathologist is able to make the diagnosis from a cancer cyst at the exploratory incision.

In studying these twenty-seven cases in which the cyst only was removed I find that in every instance the contents of the cyst were either clear or slightly cloudy serum—never hemorrhagic, granular or grumous.

The cyst wall has always been smooth and not thick. In the breast tissue surrounding the cyst and cut through during the excision of the cyst dilated ducts filled with grumous pastille material have been found in six cases, and in these, in addition, there have been a few minute cysts of the size of the head of a white pin or a little larger.

Among the single tumors definite areas of the adenocystic type of the hypertrophy have been present in but two instances. When this has been present to any extent it has been my rule to excise the breast. Among the three cases in which one or two of the multiple tumors were removed, this adenocystic type was present in two.

The observations just discussed demonstrate that for the simple cyst situated in a breast in which the senile parenchymatous hypertrophy has not reached the adenocystic type, conservative measures are justifiable. When the adenocystic areas are present to considerable extent, I have as yet no evidence to offer that it is justifiable not to remove the breast, but I am of the opinion that further observations will allow us to select cases for conservative treatment even in this group.

In the remaining cases either the entire breast was removed or the cancer operation performed. These cases, therefore, allow one to study the opposite or remaining breast only, but can not be used as evidence for or against the conservative treatment of this disease.

In this group, however, we are brought in contact with those cases in which the diagnosis of carcinoma has been looked on as sufficiently indefinite to justify the complete operation for carcinoma.

Among 50 cases in which the breast contained a simple cyst the cancer operation has been performed 12 times, that is, in 24 per cent. of the cases, while among 15 cases of the hypertrophy without cyst formation the cancer operation has been performed 5 times; that is, in about 33 per cent.

Among the twelve cases of cyst treated as cancer, in six the operation was performed without an exploratory incision. In only one of these cases was there a definite clinical sign of cancer. This was a patient of Finney, and the nipple was retracted. In the other five cases the palpation of the tumor gave the surgeon the impression that it was carcinoma.

It requires a great deal of experience to diagnose cancer of the breast from palpation of the tumor alone. When this sign is present and no others, I am of the opinion that an exploratory incision should be made. In the six cases in which the cancer operation was performed without exploratory incision there would have been no difficulty in making the diagnosis of a benign simple cyst if the tumor had been explored.

Of the six cases which were explored, in one there was a thick-walled cyst; in another, two dilated ducts from which pastille contents could be expressed, and in a third case a small area of the adenocystic type of the hypertrophy in the wall. In these three cases the gross appearance and the frozen section would give rise to some difficulty, but I believe that after moderate experience such cases will be recognized. The mistake has never been repeated in Dr. Halsted's clinic. In the remaining three cases there was no reason for the mistaken diagnosis. The cysts were present in a rather senile, fibrous breast. These patients were operated on by surgeons who had had very little experience, and they deemed it wiser to perform the cancer operation, as they were in doubt.

I have gone over this point with considerable care and before writing the above have carefully studied each individual case, with the conclusion that the differential diagnosis between a cancer cyst and a simple cyst, now that we have the evidence presented, should not be a difficult one.

Now, when we come to differentiate the benign adenocystic type of the hypertrophy from adenocarcinoma, we have a more difficult problem. But I wish to emphasize this point: If in all such cases the treatment is for cancer, there would be relatively but a few patients on whom the cancer operation would be performed unnecessarily. But in the larger group, the cysts, the benign cysts so far outnumber the cancer cysts that it is distinctly worth while educating oneself to make the differential diagnosis.

In the senile parenchymatous hypertrophy without the large cyst formation, which is also known as Schimmelbusch's disease, and which differs from the cystic adenoma of the breast only in the fact that it is not encapsulated, the differentiation from carcinoma, clinically, in the gross, and in the frozen section, and even in the better stained section, may be very difficult, in inverse

proportion to one's experience. I have examples of a mistaken diagnosis in each group. Clinically, it may simulate carcinoma, because the zone is hard and nodular; at the exploratory incision the little cysts filled with proliferating epithelial cells in a comparatively fair amount of stroma suggest adenocarcinoma. I shall have to leave to a larger contribution to be published later the details of this differential diagnosis. It can be made with certainty and safety to the patient.

PAPILLOMATOUS CYSTS

I find I have tissues and records of thirteen cases of malignant papillary cysts and twenty cases of distinctly benign cysts containing an intracystic papilloma. The diagnosis in the malignant intracystic papilloma could be made in all but three cases clinically. In many of these cases there was a long history of tumor and of discharge of blood from the nipple, but this was not present in all the cases.

The clinical diagnosis could be made from the retraction of the nipple or some involvement of the skin. For this reason an exploratory incision was not necessary. But the examination of these breasts after the operation revealed a pathologic picture entirely different from the benign cyst. There was no longer a papilloma in the wall, but a soft fungous growth, like a medullary carcinoma. One could distinguish, then, the malignant papilloma from the benign without difficulty. None of these cysts contained pure blood, but a grumous, granular material, sometimes hemorrhagic.

In three cases the cysts were clinically benign, but on account of the character of the contents of the cysts and the appearance of the tumor projecting from the wall a diagnosis of a malignant cyst could easily be made. In this group of thirteen cases there was but a single mistake made, but in this—an outside case—the breast had been removed. If the surgeon had made an exploratory incision there would have been no difficulty whatever in making the diagnosis. In this case there was a local recurrence eleven months after the removal of the breast.

Among the twenty benign cases, in six—about 30 per cent.—the tumor was treated on the diagnosis of carcinoma. In four of these cases an infection of the benign cyst produced changes in the skin so closely suggesting a malignant cyst that the operation for carcinoma was performed without an exploratory incision; one of these was a case of my own. In the remaining two cases the surgeon at the exploratory incision, in addition to a papillomatous cyst, found, in the wall of this cyst, a small area of senile parenchymatous hypertrophy, and interpreted it as carcinoma. That is, we have the same difficulty here as was experienced in the simple cysts with a similar minute cystic area in the wall.

In all of these cases of benign papillomatous cysts the contents of the cyst have been clear or hemorrhagic, never grumous or granular. The typical appearance of the benign papilloma (that of a raspberry or strawberry) was preserved; now and then the papilloma filled the entire cyst. That we were correct in our diagnoses in this group is confirmed by the study of the ultimate results. Every patient is apparently well to-day. The glands in the six cases in which the cancer operation was performed showed no metastases. In three cases only the tumor was removed; in the remaining—not treated as carcinoma—the breast. None of the cases were bilateral. The age of the onset varied from thirty to sixty-four; the duration of the tumor from three weeks to fifteen years. In over 75 per cent. of the cases there was discharge from the nipple, usually hemorrhagic. In one the cyst involved a male breast.[3]

I trust that I have shown by this summary of cysts of the breast that the correct diagnosis in the early cases must rest on the gross and microscopic pathology. If patients seek the advice of surgeons earlier, the surgeon will less frequently be able to use his art of clinical diagnosis, but must employ his own pathologic diagnostic abilities, and, if this is not at hand, he will require the services of the pathologist of his clinic.

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ABSTRACT OF DISCUSSION

DR. WILLIAM C. MCCARTY, Rochester, Minn: There are types of malignancy in papillary cysts of the breast, *i. e.*, malignant change in the epithelium of the papillomata and change in the breast tissue surrounding the cyst. These perversions in the cells may be best discovered and studied at the time of operation by making frozen sections and staining them with Unna's polychrome methylene blue. Such sections can be made in from fifty seconds to two minutes, and are not only as good as paraffin and celloidin sections, but are better and more accurate, and may be photographed with better results. The importance of such early diagnosis may be seen from the fact that about 80 per cent of the tumors of the breast are malignant and experience has taught us that about half of the remaining 20 per cent would become milignant if left alone. The standard usually taken by pathologists that the cells must dip beneath the basement membrane before being considered malignant is, in my opinion, too conservative. This has been especially true in papillary growths of the bladder, specimens of which removed through the cystoscope have been reported malignant purely on cell studies. These specimens were proved to be malignant after resection by the fact that the cells in the base had dipped below the basement membrane.

DR. HENRY S. WIEDER, Philadelphia: I am in the habit of considering the whole condition of cystic disease of the breast as only a part of general involution. In my experience it seems that the cystic variety is not so common as the more important proliferative variety in which, according to Dr. Warren, is more frequently found carcinomatous change. In the true cystic variety one rarely finds carcinoma associated, but one does find it in a high percentage of cases of the proliferative type. I believe that a careful study of this disease is the secret of early diagnosis of carcinoma. All cases should be studied thoroughly to discover whether they have undergone adenomatous involution and whether this is associated with carcinoma.

DR. J. C. BLOODGOOD, Baltimore: Most of these photomicrographs were taken from frozen sections. It is to be remembered that in the beginning my training was distinctly that of a surgeon and that I attempted to educate myself to recognize disease in the gross. The opportunities for this were first afforded by the great number of tumors which came to the clinic in which there was no difficulty in making a clinical diagnosis. In those earlier days we did not often see carcinoma and other malignant tumors of the breast and elsewhere in that period in which a clinical diagnosis could not be made; but when this did happen, it was found that the disease exposed at the exploratory incision during the operation did not differ at all from the many that had been studied carefully in the laboratory after operation. I would like to state here that I found Dr. Halsted using this method of diagnosis when I came to his clinic in 1892. Practically, we never depend on frozen sections. During the past five or six years we have been making frozen sections in order to show the students within a few minutes the relation between the gross and microscopic picture. Dr. Lambert has developed the technic of frozen sections to such a point that for practical purposes they are almost as good as more carefully prepared sections. But the frozen section made within a few minutes is never quite so clear as one made from tissues which have been hardened in formalin.

3. Peck: Ann. of Surg., September, 1903, xxxviii, 450.

I am aware that few surgeons or pathologists will agree with me that it is easier to make the diagnosis from the gross appearance. I will admit, however, that the two together are better than either, but if one must depend on only one of the two, with my training, I should prefer the gross. My histologic conception of malignant disease, for example, carcinoma, is based on a long observation of the combination of the clinical, gross and microscopic appearances. Up to the present, for every histologic picture that has been considered malignant I have observed at least one example of metastasis and death from cancer. And for every picture considered benign, further clinical observation has confirmed the diagnosis. Dr. Welch has often remarked to me that the surgeon who studies his cases pathologically and keeps track of the ultimate results has a much better opportunity to become conversant with the relative grades of malignancy, for the pathologist seldom has an opportunity to keep track of the ultimate results.

HEMOLYSIS IN THE DIAGNOSIS OF MALIGNANT NEOPLASMS *

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The importance of the early diagnosis of malignant neoplasms and tuberculosis seems a sufficient reason for reporting the observations in the following cases.

The aim has been to study the reaction in as wide a series of various conditions and diseases as possible, and thus to throw as much light as possible on the value of the reaction from a diagnostic standpoint rather than merely to duplicate the work already done with reference to carcinoma and tuberculosis.

With reference to the reversed hemolysis in tuberculosis, the aim has been to study the reaction in early cases, and in those with small localized or latent lesions with slight or no positive clinical symptoms or signs, but giving a positive tuberculin reaction.

Table 1 is a list of the findings in such tuberculous cases studied, the hemolytic reaction being negative in the large proportion in which the lesions were latent or small in extent with no definite clinical symptoms, and reversed when the lesion was extensive or decidedly active in character.

One such case, that of a patient with apparent involvement of the mediastinal glands but with no definite symptoms other than an occasional temperature of 0.5 degrees at times, was studied both before and during tuberculin treatment. Before treatment there was a tendency toward an unstable condition of the red corpuscles with reference to normal serums, but not sufficient to produce a typical reversed reaction in any examination, a number of examinations being made both before and during the treatment. After three or four weeks' treatment with increasing doses of tuberculin, the corpuscles become more stable, and in all subsequent examinations reacted exactly as normal corpuscles. No patients giving a typical reversed reaction were treated with tuberculin and the blood examined subsequently, so this single case may or may not be significant, but the behavior of the corpuscles toward normal serums after the treatment was well under way was certainly very suggestive.

Thus only the advanced or decidedly active cases gave reversed hemolysis, the others being negative. With the exception of the two pulmonary cases and the case of tuberculosis of the hand, in which the tuberculin test was not made, all gave a positive tuberculin reaction. The pulmonary case failing to give the reversed hemolysis was that of a patient 70 years of age. The clinical diagnosis was carcinoma of the stomach, and a gastroenterostomy was performed. The case came to autopsy one week later, when duodenal ulcer was found. Old tuberculous cavities the size of a goose-egg and caseous nodules were present in the lungs.

TABLE 1.—TUBERCULOUS CASES

Character of Cases.	No. Cases.	Reversed Reaction.	Negative Reaction.
Tuberculous knee	2	1	1
Tuberculous hip	2	..	2
Tuberculous spine, advanced	1	1	..
Tuberculous lungs, advanced	2	1	1
Tuberculous peritonitis	4	4	..
Tuberculosis of bladder	1	..	1
Tuberculosis of hand	1	..	1
Tuberculosis, glandular or pulmonary, slight or no clinical symptoms	30	..	30

The degree of hemolysis occurring varied considerably in different cases, being more marked as a rule in the larger and softer tumors and those showing considerable necrosis, and less in the smaller and harder varieties. Several of the cases above classified as negative showed slight hemolysis late; i. e., after forty-eight to seventy-two hours. The two cases of carcinoma of the rectum giving a negative reaction were not examined microscopically, so the clinical diagnosis was not verified in these two.

TABLE 2.—CARCINOMA CASES

Character of Cases.	No. Cases.	Positive Reaction.	Negative Reaction.
Carcinoma of stomach	16	15	1
Carcinoma of breast	11	9	2
Carcinoma of uterus	7	6	1
Carcinoma of rectum	3	1	2
Carcinoma, others	6	6	0

The hemolysis was not as marked in the cases of sarcoma studied as in many of the carcinoma cases, but with the exception of Case 6 all were of small or moderate size. One other patient was operated on and Coley's fluid given for three months following the operation. Six months after the operation the blood was examined, the reaction being negative. There has been no recurrence, one year after operation. Patient 1 was examined several times during the use of Coley's fluid, the reaction being marked at first and becoming less pronounced with each following examination. Coley's fluid was given daily for about seven months, then twice a week, and again given daily for two weeks prior to the final examination. This final examination showed but a faint trace of hemolysis. The hemolysis in the other cases of sarcoma treated with Coley's fluid appeared to increase slightly with the use of the mixed vaccine, the examination in these cases being made in the early weeks of the vaccine treatment.

TABLE 3.—SARCOMA CASES

No. of case.	Character of Cases.	Reaction.
1	Sarcoma of skin; incompletely removed	pos.
2	Osteosarcoma of knee	pos. sl.
3	Spindle-celled sarcoma; ankle; small	pos. sl.
4	Spindle-celled sarcoma; neck and axilla; half-orange size	pos.
5	Giant-celled sarcoma of knee; small	pos. sl.
6	Spindle-celled sarcoma; abdominal cavity; large mass	pos.
7	Small round-celled sarcoma; neck; small	pos.
8	Osteosarcoma; thigh; removed; metastasis in lung	pos. sl.
9	Small round-celled sarcoma; groin; small	pos.

Two cases of endothelioma were examined, hemolysis occurring in each. One was an endothelioma of the meninges, the other of the peritoneal cavity.

No benign tumors showed hemolysis.

* Read in the Section on Pathology and Physiology of the American Medical Association, at the Sixtieth Annual Session, at Atlantic City, June, 1909.

Extracts of the tumor tissue in normal salt solution failed to hemolyze in a few cases of carcinoma, but the hemolysis was somewhat more constant with the extracts than with the patients' serums.

The hemolytic test was not affected in any way by vaccine treatment in the few cases studied, except possibly by tuberculin and Coley's fluid, as mentioned.

Table 4 shows the results of the hemolysis test in a variety of conditions, with the number of each:

TABLE 4.—HEMOLYSIS TEST IN VARIOUS CONDITIONS

Character of Cases.	No. Cases.	Positive Reaction.	Negative Reaction.
Carcinoma	42	36	6
Carcinoma removed	2	0	2
Sarcoma	9	9	0
Sarcoma removed	1	0	1
Endothelioma	2	2	0
Benign tumors	14	0	14
Tuberculosis*	43	..	36
Septic infections	35	3	32
Typhoid fever	22	7	15
Lobar pneumonia	6	3	3
Acute articular rheumatism	1	0	1
Tonsillitis	1	0	1
Elephantiasis of leg	1	0	1
Benign stricture of rectum	1	0	1
Duodenal ulcer	1	0	1
Cholecystitis	2	0	2
Cholelithiasis	3	0	3
Actinomycosis	3	0	3
Uremia	1	0	1
Diabetes mellitus	1	0	1
Grave anemia, secondary	1	0	1
Pernicious anemia	2	0	2
Exophthalmic goiter	1	0	1
Streptococcus vaccine	5	0	5
Staphylococcus vaccine	2	0	2
Mixed vaccine (strept. and staph.)	2	0	2
Pasteur vaccine	6	0	6
Tuberculin	1	0	1
Coley's fluid	4	4	0
X-ray	1	0	1
Normal	85	4	81

* Seven reversed reactions.

The normal cases showing hemolysis were all reexamined within a day or two, and no hemolysis occurred a second time in any of the four, as was true in subsequent examinations in these cases, indicating that the positive reaction was due either to some error in technic or to a temporary condition of the serums of those individuals. In many of the malignant cases two or more examinations were made, and in every case showing hemolysis the reaction was constant. The typhoid fever cases showing hemolysis were with one exception all in the fourth or fifth week of the disease, hemolysis in the one exception occurring during the second week.

The technic has not been materially modified from that used by Dr. Crile in his work. A few minor variations have facilitated the work somewhat. Placing the tubes upright for the clotting of the blood and obtaining clear serums has given better results in our hands than slanting the tubes. Corpuscles must be thoroughly washed, otherwise in hemolytic cases enough serum may be left to cause hemolysis of those corpuscles when added to normal serums, thus giving both a direct and reversed hemolysis and tending to confusion. The greatest care must be used in the preparation of all apparatus and solutions; otherwise the results can not be relied on.

CONCLUSIONS

1. The hemolysis reaction appears to be of decided value in the diagnosis of malignant neoplasms. Negative results do not rule out malignancy, but speak strongly against it.

2. The reversed hemolysis appears to offer valuable information with regard to the extent and activity of the tuberculous lesion.

3. Several examinations should be made in doubtful cases.

4. The reaction does not appear to occur in other conditions that would lessen its value in the diagnosis of malignancy.

ABSTRACT OF DISCUSSION

DR. W. J. BUTLER, Chicago: I wish to refer to the great difference in the conclusions drawn by different experiments from practically the same results. With Dr. Mefford I examined a considerable number of cases to see what there was of value in the test. This work dates back to Maragliano, who, in 1892, called attention to the fact that the blood serum of patients suffering from various diseases frequently hemolyzed the corpuscles of normal individuals, and also those of other patients. We examined a number of cases, on which we have reported, made up of carcinoma, tuberculosis, typhoid fever, malaria, etc. Among the cancer cases, mostly of the stomach, uterus and breast, of which there were 22, 13 showed an hemolytic effect on the corpuscles that were used—a reaction in 59 per cent. Some of these hemolyzed the corpuscles of other cancer patients. In the tuberculosis cases, 3 of 8 cases showed the hemolytic reaction. One hemolyzed the corpuscles in another case of tuberculosis. I have never seen this reverse hemolysis, if I understand it correctly. As I understand it, it is the hemolytic effect of normal sera on the corpuscles of a tuberculous patient. Possibly the reason I have not seen it is because a comparatively small number of cases of tuberculosis were examined. All the patients were in the advanced stages of the disease. I can not attribute the failure to see it to defects in technic. On the contrary, I would regard failure to get it the best evidence of good technic. Of 5 typhoid cases, 2 gave a strong hemolytic reaction. There were 5 cases of pneumonia examined, 2 of which gave a strong isolytic reaction. In 2 cases of gastric ulcer, 1 of pernicious anemia, 1 of salpingitis, etc., isohemolysis occurred. I noticed that in nearly all instances in which isohemolysis was observed we got isoagglutination. There seems to be some relation between these phenomena. In only 3 among the cases that we examined did we get an isohemolytic action without isoagglutination. For these reasons, the results given by investigators differ widely. If you do not happen to have corpuscles of an individual that will be agglutinated by the sera you are testing, you will usually get a negative reaction. Individuals are divided into three groups, according to the agglutinating effect of their serums on the corpuscles of others. The serum of one belonging to Group 1 will agglutinate the corpuscles of Groups 2 and 3. Group 2 will agglutinate Group 3, but not Group 1. Group 3 will agglutinate Group 2 and may agglutinate corpuscles of Group 3. If you happen to have an individual of Group 3 whose corpuscles are agglutinated by Group 1 and Group 2, you will invariably get a positive hemolytic reaction with the serum of individuals suffering from various diseases, whether tuberculosis, malaria, pneumonia, cancer, etc. I regard the reaction as absolutely valueless from a diagnostic standpoint.

DR. FRANK SMITHIES, Ann Arbor, Mich.: My work has not been so extensive as that of Drs. Johnstone and Canning; I have not had an opportunity to take up so large a number of cases, nor to test some of the various phases of the technic. In all, I have examined 95 cases as to the presence of hemolysis in various diseases, especially cancer and tuberculosis. Of these, 14 cases were carcinoma, they proved to be so microscopically, by section; 58 per cent. gave a positive reaction; that is, there was hemolysis. Of these, the early cases were not uniformly positive. The late-stage cases were more nearly so, but there were some cases that did not give the reaction. Of 35 patients with diseases other than cancer or tuberculosis, 65 per cent. were negative. I had positive reactions in some of the anemias—2 cases of pernicious anemia, 1 case of Bright's disease, several cases of scarlet fever, and 2 cases of pleurisy; also in 2 patients who had been receiving the Pasteur treatment for hydrophobia. Nineteen patients with tuberculosis in all stages of the disease, were examined; and in only 2 did I succeed in getting the so-called reverse hemolysis. I might say, also, that in these 2 cases I was not quite sure that more experienced men than myself would have called it reverse hemolysis. These 2 cases were late-stage

patients. In both there was abundant sputum and small cavities in the lungs. Of 28 clinically normal individuals, one presented characteristically typical hemolysis. The reason for this I can not explain. It may have been due to my inexperience with the reaction. In the paper on the action of crotalus venom, read in this Section, the statement was made that citrated corpuscles are less subject to hemolysis than those which are defibrinated by means of glass beads. I found this to be so, but my observation did not extend over many cases. Heated serum, in my experience, did not give the hemolysis. I believe that while a positive reaction is of great interest, I would not wish to take the serum test in itself as constituting final evidence. I think that there are many cases of carcinoma that do give this reaction, but these could quite as well be diagnosed by other clinical means. Possibly a longer series of cases will alter my opinion.

DR. H. NOGUCHI, New York City: Has any study been made to determine if heterohemolysins are also increased in the serum of persons afflicted with malignant tumors? It would be of theoretical interest to investigate whether isohemolysin makes its appearance without being accompanied by an increase in the content of heterohemolysins. What effect will isohemolytic serum have on corpuscles of anthropoid apes?

DR. H. G. SCHLEITER, Pittsburg, Pa.: In a series of examinations for hemolysis on 50 patients, 20 of which were subject to malignant disease, I obtained positive results in 15, or 75 per cent. Two of the negative cases were epitheliomata of superficial structures: the 3 remaining negative ones were well established cases of uterine carcinoma, confirmed at operation or by microscopic section. It has been my experience also that syphilitic cases tend to show rather uniformly a reversed hemolysis. This, together with the fact that various other pathologic conditions have, in the hands of different workers, exhibited a positive reaction, would seem to indicate that with the principles hitherto employed, there are so many confusing factors as to make necessary a considerable amount of further study before allowing this reaction anything like a specific diagnostic value—despite the fact that it would seem to have a confirmatory value in instances of malignant disease in the presence of positive clinical data.

DR. O. P. JOHNSTONE, Pittsburg, Pa.: Regarding the agglutination of the corpuscles and its relation to hemolysis, I have noticed agglutination in many of these cases, but have not observed any definite relationship between it and hemolysis. Many cases showed agglutination with no trace of hemolysis; others showed decided hemolysis with no agglutination. In defibrinating the blood I have ceased using the glass beads. Quite as good results are obtained by simply shaking the tube containing the blood, without the beads, and with less tendency to break the corpuscles or test tube. I have not had the opportunity to study the reaction in many cases of syphilis. I have had a few cases of tertiary syphilis in which the reaction was negative.

Regarding irregular hemolysis in cases not malignant and in normal individuals, I would say that from my experience it seems to be due more often if not always, to some error in technic. We have a good many points for errors to creep in, in performing the test, and must keep our eyes on all of them all the time—the test tubes, syringe, pipettes, salt solution, receptacles for the salt solution, the small tubes in which the test is finally set up, etc. These afford many chances for the introduction of some factor causing hemolysis, in some of the tubes and not others, or in all the tubes. Before we condemn hemolysis as being valueless because of irregular results we should check up carefully every point in technic. With caution and good technic, I feel that the test affords much valuable information in malignant conditions and tuberculosis. I would not advocate it, however, as a final and positive single test in either condition, but as one link in the chain of evidence. We must remember that a negative test does not mean the absence of carcinoma or malignancy, but rather that it speaks against such a condition, about 15 per cent. of such cases, however, failing to give the reaction. I have not studied many cases of epithelioma of the skin. I suspect that here the percentage of negative results of the test will be larger than in the malignant cases studied in this series.

Clinical Notes

CONGENITAL ABSENCE OF ONE KIDNEY

REPORT OF A CASE *

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Patient.—Mrs. H., 40 years of age, was referred to me by Dr. Gerry Morgan on Oct. 27, 1907. Family history was negative save that a sister died from pulmonary tuberculosis.

Previous History.—Patient suffered from diarrhea for thirty years; occasionally she had from eight to twelve evacuations daily. She was the mother of two children. The first labor was instrumental; the second was normal; there were no uremic symptoms either time. She had leucorrhea intermittently. In 1901 patient had excrutiating pain extending to the groin on the left side. This was followed by the passage of fifty-three stones via urethra. There was no blood passed at this time. For the succeeding two years she was practically free from symptoms; then she began to have attacks of pain similar to those experienced at the time the calculi were passed. No calculi were passed, however, nor were any passed since those referred to. In 1904 an ovary was removed; it was reported to me for an inflammatory condition. About March 4, 1907, the attacks of renal colic began to be more frequent; following each, large quantities of pus appeared in the urine, but no calculi were passed. In June, 1907, the patient experienced the most severe attack of pain, sharp, shooting and knife-like in character; this lasted for twenty-four hours, although the patient was given three grains of morphin. The attacks increased in frequency and severity. Just prior to her visit to me she suffered also from inability to void urine and on catheterization no urine was obtained. The first urine passed after these attacks referred to was very cloudy; urination occurred at intervals of fifteen to thirty minutes, and was accompanied by marked burning, but with no sudden stoppage of the stream. Every micturition was more or less painful and the patient was up from three to eight times nightly to urinate.

Examination.—The patient was a very stout woman weighing about 225 pounds; anemic and had every appearance of illness. She was so fleshy and so nervous that nothing could be learned by abdominal palpation. The examination of the urine showed a large amount of pus, a specific gravity of 1016, an acid reaction, a slight amount of albumin and 322 grains of urea in twenty-four hours. On October 29 the patient was examined under ether at Garfield Hospital. The left kidney was palpable, appearing enlarged; it was felt with difficulty as the patient was so very stout. The right kidney was not palpable. The patient was then cystoscoped. The trigone was inflamed but the rest of the bladder was practically normal. The left ureteral orifice was seen, appearing gaping and discharging turbid fluid. It was impossible to find the right ureteral orifice. The left ureter was then catheterized and urine identical with that obtained from the bladder collected. On microscopic and chemical examination there was practically no difference in these urines. A very careful search of the bladder was made but the right ureteral orifice could not be found. I had made such a careful search that I was sure only one ureter was present. An *x*-ray was negative for stone. I though at the time that she only had one kidney.

Under large doses of urotropin and water the condition improved; at least the patient thought that she was more comfortable. About the end of April she had repeated attacks of pain as described before and I felt that possibly opening and draining the pus from the kidney might prolong her life or at least make her more comfortable. Before operating I thought it best to make one more attempt to find the other ureter, so she was cystoscoped again on May 14. The left ureter was catheterized and the collected urine showed an analysis identical to that obtained on October 29. Very careful search revealed no other ureteral opening.

* Read before the American Association of Genitourinary Surgeons, May, 1909.

Operation.—The patient was operated on on May 19, 1908. The kidney was exposed, incised and about a pint of urine containing pus both free and inspissated escaped. No calculi were found. Drainage was maintained by fixing a tube in the pelvis of the kidney. The firm masses of purulent material passing down the ureter unquestionably had caused the severe attacks of renal colic.

Postoperative History.—After the operation practically all urine escaped into the dressings. Several bladder catheterizations obtained only a few drops of urine. The patient did very well for three days; she then began to vomit large amounts of fluid. A diagnosis of gastromesenteric ileus was made. Secretion of urine continued up to the time of patient's death, nine days after operation.

Autopsy.—On May 28: This revealed the presence of but one kidney. On the right side there was no artery or rudimentary vessel in the location of the renal artery. Careful search was made for an adrenal gland, but none could be found. The large pyonephrotic kidney was removed from the left side, together with the bladder. Careful examination of the bladder revealed but one ureteral opening, namely, the left.

Without cystoscopic examination and ureteral catheterization, I believe that this kidney would have been removed. Although the result to the patient could have been no worse than in this case, it is certainly more satisfactory to have made a correct diagnosis than to have removed a solitary kidney.

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AN UNUSUAL STRANGULATED INGUINAL HERNIA

F. E. CLOUGH, M.D.
LEAD, S. DAK.

History.—J. T., aged 17, had had an undescended testicle in the lower end of the right inguinal canal since a baby without producing any symptoms. On July 13, while walking along a railroad track he stumbled and fell forward. In attempting to catch himself he felt something give way in the right inguinal region, but after resting for a few minutes, during which time he vomited once, he was able to walk to his home half a mile away. During the next two hours he vomited several times and had a great deal of pain in the region of the undescended testicle which had increased to twice its normal size. When seen three hours after the injury a diagnosis of strangulated hernia was made and an unsuccessful attempt made to reduce it under anesthesia. Immediate operation was then performed.

Operation.—On opening the canal, a hernial sac was located above and behind the tunica vaginalis, the neck of which sac was constricted. On opening the tunica vaginalis, a communication about one-fourth inch in diameter was found leading into the lower end of the hernial sac, so that the intestine which had passed into the tunica vaginalis was constricted both at that opening and at the neck of the true hernial sac. There was no other communication between the tunica vaginalis and the general peritoneal cavity. The hernial sac was separated from the tunica vaginalis and the neck ligated while the testicle, freed from adhesions and superfluous structures, was placed without any difficulty in the scrotum.

The patient made an uneventful recovery and is now doing moderately hard work six weeks after operation.

To Prevent Mosquitoes.—Dr. William Tell Kudlich has brought to the notice of the health board of Hoboken, N. J., says the *Scientific American*, a plan for exterminating the mosquito, which consists in planting mosquito-ridden tracts with arzolla. The plant is a native of Africa. It in a short time covers marshy land with a layer three inches thick, thus both suffocating mosquito larvæ and preventing the living insects from depositing their eggs in the water. The plant is said to have been used with some success in the German colonies of Africa. It is not stated whether or not there is any danger that arzolla growth would also become a nuisance.

AN UNUSUAL CASE OF INTESTINAL OBSTRUCTION

GEORGE W. ELY, M.D.
PITTSBURG, PA.

History.—H. J. F., male, aged 18, stenographer, was referred by Dr. G. A. Speer, Sharpsburg, Pa. There is nothing bearing on the disease in the history previous to April, 1907, when the patient had an attack of acute appendicitis, for which I operated and found a gangrenous appendix with a large abscess. The appendix was removed through a gridiron incision, a cigarette drain and some loose gauze being used for drainage and the wound partly closed by sutures. The drainage was left in for several days and the wound allowed to close by granulations; the process was completed in about six weeks without any unusual features. From that time until the present illness the patient enjoyed excellent health, with entire freedom from pain, bowels moving normally and regularly.

Present Illness.—On April 15, 1909, the patient was awakened at about 5 in the morning by intense abdominal pains, colicky in nature and generalized over the entire abdomen; he had a good stool which alleviated his suffering and he returned to bed and went to sleep; two hours later he was again awakened with similar pains, had another stool, and, feeling better, started for work, without any breakfast. Shortly, however, he had to return home and go to bed owing to the severe pains. At this time he began to vomit greenish-looking material, the vomiting recurring at intervals throughout the day, with no change in character. Dr. Speer was then called, ordered abstinence from food and drink, applied an ice-bag to the abdomen and gave an injection of morphin and atropin. The following day the patient's condition was practically unchanged, except that the vomiting had ceased; the bowels were moved by enema in a satisfactory manner.

Examination.—The next day the patient was referred to me and sent to the hospital, where his condition was found to be as follows: Temperature, 99.8; pulse, 84; respiration, 20; facies indicative of intense suffering, although slightly flushed, patient restless, and tossing in bed, thighs flexed and respiration labored. The abdomen was slightly distended and very rigid and tympanitic over its entirety, very tender to the touch, especially about the region of the navel. Nothing definite could be learned by palpation, while percussion elicited a slight tendency toward dulness in the right lower quadrant. The blood-count showed: reds 4,600,000, whites 11,000. Differential count: polynuclears 70 per cent., eosinophiles 2 per cent., large mononuclears 8 per cent., small mononuclears 14 per cent., and transitionals 6 per cent. Urine: a trace of albumin, a few casts, red and white cells.

Course of Disease.—The patient was placed in bed, put in the Fowler position and an ice-bag applied to the abdomen. No food or drink was allowed and an enema was administered, which was satisfactorily effective. During the following week the patient's condition continued essentially the same, the temperature ranging from 98 to 99, pulse from 72 to 80. The patient had a stool every day as a result of enemas administered. His condition was thought to be one of partial obstruction due to adhesions or constricting bands and operation was not deemed urgent. On April 25, 1909, he was feeling especially well until 4 in the afternoon, when he began to vomit fecal matter, became enormously distended, and suffered intense pain. His temperature dropped to 97.6 and the pulse went to over 100. No gas or feces could be obtained from the bowels by repeated enemas. The vomiting persisted.

Operation.—At 7 p. m. the abdomen was opened to the right of the median line, a little below the umbilicus, for here dulness could now be detected. As soon as the peritoneum was opened, liquid feces poured out with a gush; probably three pints or more were evacuated. It was then evident that there was an opening into the bowel, which was sought for. In doing this a loose piece of gangrenous intestine was encountered at the bottom of the cavity. It was about ten inches long and had the mesentery attached. After this was removed the proximal end of the divided intestine was brought to the surface and anchored there; a prolonged search was not made for the distal end of the intestine, as the patient's condition would

not warrant overmuch trauma. The cavity left in the abdomen was large, and was completely walled off from the general peritoneal cavity by a firm wall of plastic material, incorporating in its sides some intestine and omentum. It was packed and drained and the skin wound partly closed.

Postoperative History.—The patient reacted very nicely from the shock of the operation, and for several days progressed favorably, but on the ninth day he had a severe hemorrhage from the depths of the wound, which was repeated at intervals, and he finally succumbed on the fourteenth day following operation from exhaustion. An examination of the abdomen after death showed a large cavity, effectively walled off from the general peritoneal cavity, into which opened both the proximal and distal ends of the intestine; and there was nothing present to give a clew as to the immediate cause of the obstruction, that is, as to whether it was due to bands, adhesions or a volvulus.

The interesting and unusual feature of this case is the fact that, although strangulation had taken place in the intestine so complete as to cause a slough *en masse*, yet there had been a stool every day since the beginning of the illness, the longest period between stools having been thirty-one hours.

It would be interesting to know just at what time the strangulation and separation took place; probably during the first part of the sickness. The proximal intestine apparently emptied its contents into the cavity, and when an enema would be given it would distend the distal portions, allowing the cavity thus to empty itself. The final, fatal obstruction was probably due to an obstruction in the distal end blocking the entire intestinal canal, producing a reverse peristalsis.

7105 Frankstown Avenue.

CYCLOPEAN MONSTERS

SOME GENERAL OBSERVATIONS, WITH REPORT OF A CASE

HARRY JACKSON, B.S., M.D.
Instructor in Pathology in Northwestern University Medical School
CHICAGO

Many of us have seen cyclopia either among the lower animals, such as the pig, or in man, and not a few of us have wondered whether such monstrosities were a reversion to some early form in whom there was normally only one eye, or an anomaly due to maldevelopment of the normal two-eyed fetus. Physiologically, it has been determined that without binocular vision man can have little or no idea of depth or comparative distance. With but one eye constructed as ours is everything would appear flat. It would be interesting to examine the data at our command for any evidence of a uniocular man.

On prehistoric foundation, we have the report in the mythology of the ancient Greeks of a race of Cyclops with whom Odysseus tried conclusions. This race of giants very possibly was suggested to the imagination of the Greek by anomalies in Nature such as those we see to-day. The Greek likewise imagined many-headed monsters and beings half man and half beast.

There is no one-eyed stage in the embryologic development of man. Among the lower animals, however, this is not the case. Some of the peculiar embryologic forms called nauplius among the arthropoda have a single median eye-spot, and, singularly enough, an adult form of the same phylum, among the crustacea, retains the single median eye-spot. It is a fresh-water form, commonly found in our small lakes and ponds, and it is given the name "cyclops." Among the higher animals we find these median eye-spots associated with lateral ones in the spiders and scorpions. A median eye is not found normally among the vertebrata. In the frog there is a vestigial eye-spot on the dorsal surface of the head which is supposed to have some connection with the pineal body.

The cyclopean eye in the higher animals and man must be considered, then, as an anomaly, and many theories as to its origin have been presented. Folk-lore attributed it to bestial origin, just as the satyrs of Grecian mythology were considered half man and half beast. Maternal impressions, lack of oxygen, injury *in utero*, action of toxic substances and disease, all have been thought to play a part. Among more scientific students, two main theories have been presented. These may be briefly named the fusion and the germinal theories.

The fusion theory was the first to be advanced. As early as 1832, Geoffrey St. Hilaire[1] believed that in such monsters the more or less imperfectly developed visual organs approached the median line and eventually fused in proportion to the degree of atrophy of the olfactory organs. Later, Ahlfeld suggested that some cases were caused by intracranial pressure resulting in the rupture of the early cerebral vesicle at about the fourth week of embryonic life. He classified these monsters in successive grades, with characters ranging from a mere narrowing of the face with poor nasal development to a very imperfect single orbital cavity situated about the middle of the face, with or without rudiments of one or both eyes above a more or less rudimentary nose.

Cyclopean monster.

Those who believe in the germinal origin of cyclopia think that it is due to some defect in the germ cell occurring before the fifth week of embryonic life. Spemann and Stockard have produced cyclopean monsters at this period experimentally, both by mechanical and chemical means. Spemann[2] ligated eggs of urodele and triton in the two-celled stage and produced double-headed monsters with or without cyclopic defect. If, for example, he ligates at the two-celled stage so that the ligature coincides with the first plane of cleavage, a monster with two equal heads is produced. But if the ligature is placed obliquely to this cleavage plane, one of the component heads shows some degree of cyclopia. Stockard[3] treated artificially fertilized eggs with a solution containing a trace of magnesium chlorid and in this way he has produced cyclopean monsters repeatedly. Wilder agrees with Spemann and Stockard in their belief in the germinal theory, and in discussing the mor-

1. St. Hilaire: Traité de tératologie, Paris 1832-1837.
2. Spemann: Zool. Jahrb. Suppl., 1904, vii, 429.
3. Stockard: Jour. Exper. Zool., 1907, iv, 2.

phology of cosmobia[4] he outlines a theory in which the variations found in cyclopia are shown to be inherent in the germ and to develop along orderly lines. His classification of cosmobia, or orderly living beings, would include:

1. Cases in which the entire individual or the part involved is less than a normal individual.
2. Normal individuals.
3. Cases in which entire individual or part involved is more than one normal individual and less than two.
4. Separate twins, both normal.
5. (a) Separate twins, one of these a diplopage; (b) cases involving a single part in value between two and three components.[5]
6. Separate triplets, and so on.

Besides the question of the origin of cyclopia, the strange-looking proboscis seems always to demand special attention. This is present in most cyclopean monsters as a long, narrow, finger-like organ projecting from the middle of the forehead just above the median eye. It sometimes shows one or two orifices at its extremity. This is interpreted by most observers to be the frontonasal process which, according to Treves, gives origin to the external nose, the ethmoid, vomer, median portion of upper lip, and the intermaxillary process. In these monsters this frontonasal process is kept from growing down into its proper location by the mechanical difficulty interposed by the median eye and it, therefore, grows outward as a proboscis-like structure. We can readily see, in the light of this explanation, the cause of the cleft condition of the upper lip and palate and the absence of the nose as shown in the illustration of the specimen here reported.

REPORT OF CASE

History.—The patient, N. C., an Irish woman, aged 39, entered the Cook County Hospital, service of Dr. Roehler, Dec. 24, 1907. The house physicians were Drs. Nilsson, Smith and myself. The patient first menstruated at 15 and had had regular menstrual periods since that time. She had given birth to three normal children who were alive and well. She had had no miscarriages and no serious illnesses. She drank beer and whisky to excess. Examination showed a middle-aged woman in the second stage of labor. Her pains were severe, occurring every one or two minutes. She stated that she had been in labor five or six hours. The abdomen was greatly enlarged and a multiplicity of small parts was palpable. Two heart tones were distinguishable, one low down on the right side, frequency 135 beats per minute, the other to left of the umbilicus, 130 beats per minute. Vaginally, the cervix was found fully dilated and a head was felt with the small fontanelle to the right and anteriorly.

Operation.—As there was no advance of the head after two hours, the patient was anesthetized and low forceps applied. A normal female child weighing 4½ pounds was easily delivered. The second child now presented by the breech and was delivered manually to the head when difficulty was experienced. Forceps were applied to the after-coming head and it was delivered. This child did not breathe well on account of malformations of the head and face, and it died after two hours. The placenta, expressed one-half hour later, was found to be double with double membranes. It weighed 2½ pounds.

Description of the Second Child.—This child was a male, weighing 7½ pounds. It was moderately hydrocephalic and in the center of its forehead was seen a more or less fused double eye. The eyelids were scarcely developed, the lower one being incomplete owing to the cleft condition of the palate and upper lip. The pupil was incompletely double, the lateral diameter being three times as great as the vertical. A snout-like projection measuring 3.5 cm. in length and 1 cm. in width was seen springing from the middle of the forehead just above the median eye. In the center of the distal end was a small opening. A postmortem examination (Dr. E. R. Le Count) revealed nothing abnormal outside the head. The single orbital cavity, the absence of the olfactory and optic nerves and optic chiasmus make the brain specially interesting, and a more extended study of this part of the specimen will be published by one skilled in anatomic work.

Thanks are due to Drs. Smith and Nilsson for permission to report the case.

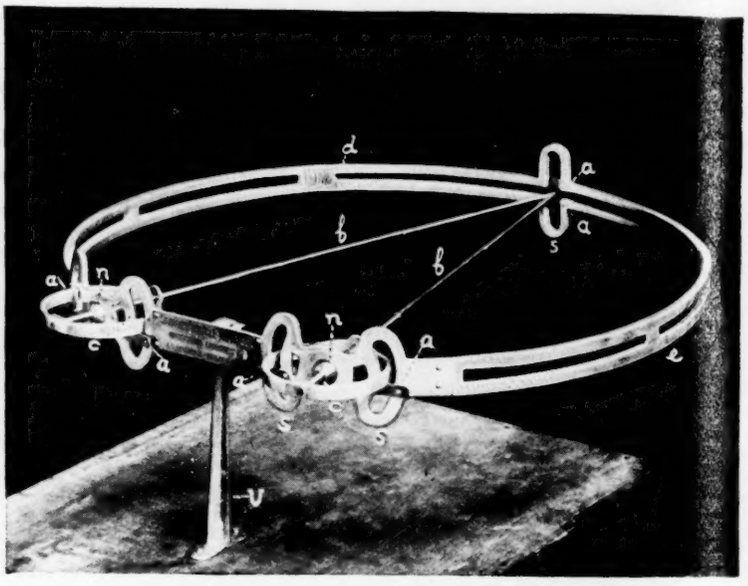
365 East Fifty-first Street.

4. Wilder, H. H.: Am. Jour. Anat., December, 1908; criticized editorially, THE JOURNAL A. M. A., March 16, 1909, liii, 776.
5. The case here reported is one of separate twins in which one of them showed cyclopic defect, the other being normal.

THE MUSCLE INDICATOR *

G. C. SAVAGE, M.D.
NASHVILLE, TENN.

In the Section on Ophthalmology at the 1908 session of the American Medical Association I presented a rough wire model of the instrument which now appears



The circle, *d—n—e*, is the primary isogonal circle, in the plane of which should always lie the two horizontal retinal meridians, *c* and *c*, and the two visual axes *b* and *b*. The center of rotation in each eye is represented by a ball-and-socket joint, *n*, through which the visual axis, *b*, passes on its way from the center of the macula out into space. The wire representing the visual axis of each eye consists in part of a tube by means of which it can be shortened or elongated. The two wires at their distal ends can be fastened by a hook-like arrangement so that they may not come apart while lying or moving in the horizontal slot, *d—e*. The vertical slot, *s*, in front is supplied with two clips, *a* and *a*, so that, when these are in place, one visual axis can not rise higher nor fall lower than its fellow, when the point of view is straight-forward. Turn the upper clip, *a*, to one side then one visual axis may rise above the other, or turning the lower clip, *a* to one side the one visual axis may fall below the other. In the first instance there would be shown hyperphoria or hypertropia, and in the last, cataphoria or catatropia. In both instances one visual axis has been allowed to leave the plane of the primary isogonal circle. When the four clips, at the slightly curved slots behind, are in place, the horizontal retinal meridians can not leave the plane of the primary isogonal circle. Turn the two outer clips to one side, leaving the two inner clips in place, the two horizontal retinal meridians can be tilted down-and-out, thus showing plus cyclophoria or plus cyclotropia. Leaving the outer clips in place and turning the inner clips to one side, the horizontal retinal meridians can be tilted down-and-in, thus showing minus cyclophoria or minus cyclotropia. In either instance the horizontal retinal meridians have been allowed to leave the plane of the primary isogonal circle.

If the second point of view lies on the primary isogonal circle, the visual axes and the horizontal retinal meridians shift in the plane of this circle while the plane itself remains stationary. If the second point of view be on some secondary isogonal circle, but directly above or below the first point of view, the primary circle is rotated to the position of the secondary circle, without any change of position of either the visual axes or the horizontal retinal meridians in its plane, the rotation being on the chord, n-n, connecting the centers of the two eyes, which is the only axis of rotation for the planes of all the isogonal circles.

* Read in the Section on Ophthalmology of the American Medical Association, at Atlantic City, June, 1909.

in a perfected form (see illustration). I have named it the "muscle indicator" and claim for it that it will show every phase of any ocular muscle or combination of ocular muscles, normal or abnormal. It answers, I believe, every question that can be asked concerning the ocular muscles, and, moreover, concerning the brain centers that control the ocular muscles; in fact, it is, as it were, a talking machine, but it has to talk through me.

The device is of use not only in teaching, for it makes teaching of the ocular rotations perfectly easy, but also in the management of intelligent people suffering from muscle errors. There is no difficulty in showing the patient what the condition is and what ought to be done for its relief.

The circle is one of many million, all in the same plane. The primary circles, which this one circle represents, must all lie in the same plane, but only one can exist at a time. The circles formed in that plane are constructed through three points, two of them forever fixed and the other changeable. The two fixed points are the centers of rotation of the eyes, and the changeable point is the point of fixation. The next point of fixation may be inside this circle, or it may be beyond it an inch or any other distance to infinity. There are just as many circles possible as there are points in space directly ahead on the line of intersection of the vertical and the horizontal fixed planes of the head. Not only have we millions of possible primary circles, but millions of secondary circles also, all passing through the rotation centers of the two eyes and their planes intersecting in the line connecting these centers. Every object in space lies on one of these circles, and in studying the rotations of the eyes it is easy to see how they are effected and what the condition is. The law that controls the ocular muscles is simplicity itself. The superior and inferior recti must keep the visual axes in the plane of the primary circle. The lateral muscles must regulate those in this plane. The obliques must forever hold, except under abnormal conditions, the horizontal retinal meridians in the plane of this circle, as well. If one visual axis rises above that plane (hyperphoria) it is shown on the instrument. If the retinal meridian tilts it is shown. There is not a possible state of the ocular muscles but what this instrument can show, and there is not a nerve center that controls the ocular muscles that can not be demonstrated by it.

THUMB-LIKE EXCRESCENCE ON THE TONSIL

EMIL AMBERG, M.D.
DETROIT, MICH.

Mrs. C. S. H., aged 42, consulted me in June, 1909. The right tonsil showed a thumb-like excrescence at the lower posterior border. Before the tonsil was removed this excrescence annoyed the patient considerably. The patient coughed in the morning and as soon "as the air changed." On June 9 I removed both tonsils, in Harper Hospital, under local anesthesia, anesthetizing the surface, and also injecting in the usual manner into the surrounding tissues a 0.5 per cent. alypin solution in suprarenalin solution, about 1 to 10,000, which were sterilized by boiling. The tonsils were enucleated. The left tonsil does not show any excrescence. The patient seen in my office in September looks much better. She reports that the annoying local symptoms have disappeared and that her general condition is much better.

270 Woodward Avenue.

INTRACANICULAR FIBROMA OF THE FEMALE BREAST UNDERGOING SARCOMATOUS CHANGE

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Instructor in Surgery in Rush Medical College (in affiliation with the University of Chicago)
CHICAGO

Fibromata of the female breast are sometimes pure and sometimes in combination with adenomata, sarcomata, myomata and cysts in the form of fibrosarcomata, fibromyomata and fibrocystomata. Fibromata develop mainly from proliferation of the connective tissue surrounding the acini and the small excretory ducts (pericanalicular fibroma). They are most frequent in young persons from seventeen to thirty years of age and are very rare beyond the fortieth year.

Pure fibromata usually form in even, solid nodules of about the size of a walnut or a hen's egg, which, in contradistinction to carcinomata, are freely movable within the breast. In rare cases, especially when combined with cystoma, fibromata attain considerable size. Schimmelbusch classifies cystosarcoma, phylloides (J. Muller), myxoma intracanalicular (Virchow) and serocystic sarcoma (Brodie), all of which tumors may attain

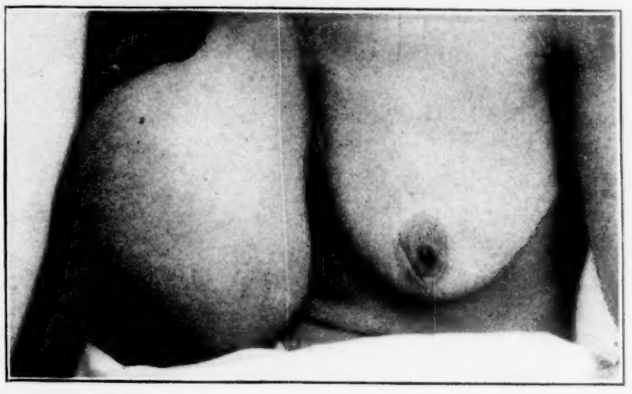

Fig. 1.—Photograph of patient showing tumor and its effect on the skin and fascia.

an enormous size among the benign fibroadenomata, and thinks they should be distinguished from the true cystic sarcomata.

The tumor to which I wish to call attention I should properly include in the second and third variety of true fibromata of the breast, the first being a tuberous, localized form of connective tissue tumor about the size of a walnut, typically encapsulated, its primary origin being in the interacinous connective tissue.

The diffuse form, with general enlargement of the breast, simulates a mastitis in which the glands or ducts are separated from each other by excessive connective tissue, which predisposes to cyst formation. This cyst formation may be only the dilated gland itself or the duct or a combination of the two caused by an obstruction to its outflow. The intracanicular form grows to a considerable size and the proliferated connective tissue pushes its way into the acini of the gland, carrying the basement with its overlying cells before it.

Patient.—Mrs. B. G., aged 54, housewife, was admitted to the hospital June 17, 1908.

History.—Father died thirty years ago from an unknown cause. Ten years ago mother died, cause unknown. Has two sisters and one brother all living and well. Patient has had four children, all boys. Two dead, one one hour after birth; the other about three years after. The other two are living. The last baby was a forceps delivery, other three normal

Menopause at 52 years; previous to this time menstruation was perfectly normal in every respect. Three or four years ago she had her first attack of pleurisy affecting at that time only the right side at base of lung. Two or three times she has had repeated attacks on the right side. Last spring she had pleurisy on the left side for the first time. From childhood she has suffered from migraine.

Present Illness.—The patient stated that about ten years ago she noted a hard nodular lump about the size of a hen's egg located in the upper and inner quadrant of the right breast. It was absolutely painless and she paid very little attention to its growth. About fifteen months ago she became bed-ridden with a severe bronchitis. After she had been ill for about a week she noticed for the first time that her entire right breast was getting larger. She was unable to give any definite information as to whether or not the enlargement was due to an increased growth of the lump noted ten years ago. She thinks, however, that the enlargement was general, progressive and independent of the small nodular growth. The right breast became larger and larger until it has reached the present size. It had always been painless, and it had never given her any trouble other than its weight. The patient stated that she believed it became somewhat smaller about four weeks after it began to increase in size, but soon after she noticed that it began to again increase in size. She had lost very little weight in the last ten years.

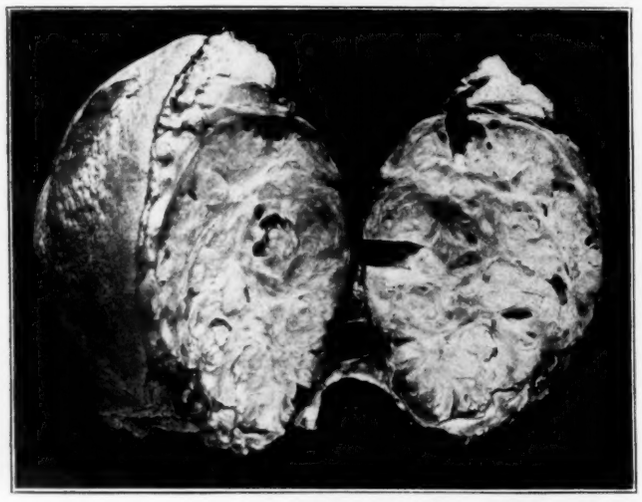

Fig. 2.—Cross-section of the gross specimen showing dense columns of connective tissue with cysts interspaced and filled with colloid material.

Examination.—General appearance was that of a frail, poorly nourished woman, past middle life, complexion dark, hair slightly gray. The left breast was small and atrophied; negative as to tumor infiltration. The right breast was symmetrically enlarged to about the size of her head; the nipple was not retracted; on the surface could be seen enlarged veins; no pulsation. The skin over the breast was slightly red in color. There was no lymphatic enlargement.

Operation.—Anesthesia, gas and ether, Dr. Morrill. On June 20, 1908, an amputation of right mamma was done under gas and ether anesthesia. The typical Halstead incision was made, extending from the axilla around the breast; skin was then undermined and breast shelled out. The axilla was then explored; no glands palpable. Tumor was cystic in places. Skin was closed with a running silk suture; rubber drainage tube inserted in axilla and at lower angle of incision. Wound was sealed with colloidion and dry dressing applied; arm bandaged to chest in flexion. Patient returned from operating room in good condition.

Histologic Report.—I am indebted to Dr. Herzog for the following report: The tumor after removal was not dissected, but was left undisturbed and fixed in Kaiserling's fluid No. 1. After having been therein for several days it was divided by a median section along the long axis and then placed again in the fixing fluid for several more days. After the return of the natural color, in 80 per cent. alcohol, it can be seen in the cut surface that the main mass of the tumor is made up of solid tissue which in arrangement and appearance looks very much like a fibromyoma or a fibrosarcoma. The solid parts, however, contain a number of spherical or oval spaces, which are filled with a material which was more or less fluid before hardening, but which is now semi-solid or gelatinous.

Microscopic examination of sections shows that the most characteristic parts of the tumor contain glandular spaces lined by columnar or cuboidal epithelium. These gland spaces look exactly like those seen in the mammary tumors usually called fibroadenoma or *fibroma peri- et intra-canaliculare.* Some of the spaces formed by the epithelial cells have become very large and cystic, of a size rarely or never seen in an ordinary fibroadenoma. These cysts contain a hyaline material which does not stain as deeply as true colloid does, but moderately deeply like ordinary hyaline. Where this material is present the cystic spaces are lined by very flat epithelia, their diminished size being evidently due to pressure. The connective tissue surrounding the gland spaces generally forms powerful tracts. In fact, the great mass of the tumor is composed of connective tissue formed mostly of spindle cells and fibers. In some parts, the spindle cells have evidently proliferated rapidly and have formed a tissue decidedly embryonic in character.

Fig. 3.—Microscopic picture (1/7 objective) of connective tissue bundles (showing the overlying acini) undergoing rapid cell multiplication.

On the whole, the tumor creates the impression that we are dealing with an original fibroadenoma which has undergone a sarcomatous metamorphosis or metaplasia. The marked destructive tendencies of a pronouncedly malignant tumor, however, are missing.

Gross has established the following facts in regard to the permanent cure of sarcoma based on 92 cases: Twelve patients remained well 4 years or longer, 42 had local recurrence, most of them (57.7 per cent.) within 6 months, on the average, at the end of 10 months and a half in some cases, after from one to four years. The tumors in young persons, and those in whom the gland is active, showed a pronounced tendency to recur and less to form metastases, while the reverse was true in sarcoma of a mamma that was undergoing involution. As compared with carcinoma of the mamma the sarcoma inclines more to metastases and less to local recurrence. The lymphatic glands are affected much more frequently (67.4 per cent.) in carcinomata than in sarcoma (0.64 per cent.). According to Horner's statistics, 76.92 per cent. of the patients

operated on remained free from recurrence longer than 2 years, 61.54 per cent. remained cured. Paulsen states that 75 per cent. of his patients, and those collected, remained well after 5 years and 25 per cent. died of metastases.

AN IMPROVED EYE-BANDAGE

C. W. TALBOT, M.D.
SPOKANE, WASH.

There are many good eye-shields on the market today, yet the one I show in the accompanying photographs I have found superior to anything I have seen.

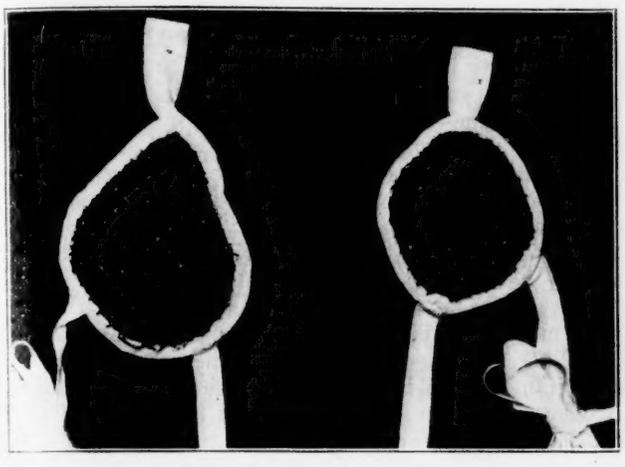

Fig. 1.—Improved eye-shield, universal form.

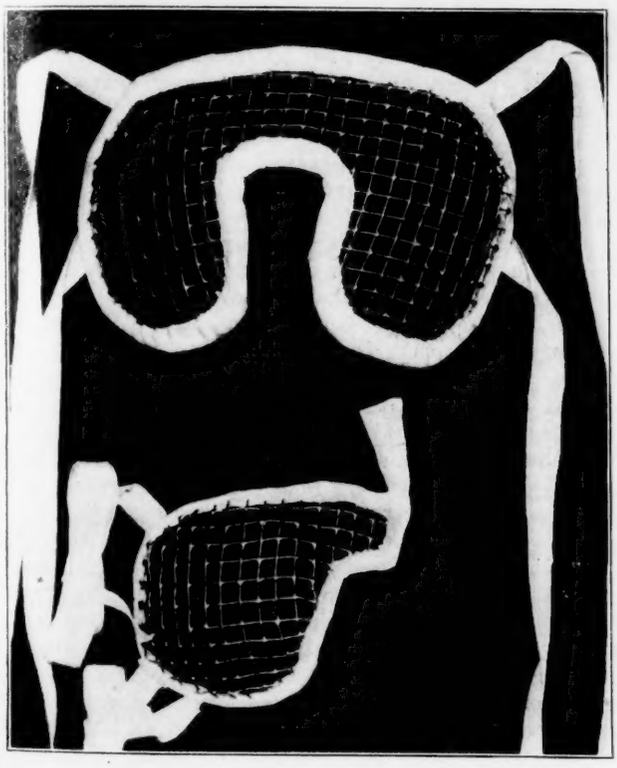

Fig. 2.—Improved eye-shields, both eyes and one for the right eye.

This eye-shield is made of quarter-inch galvanized wire netting cut to shape and the raw edges covered with cotton, after which it is bound with ordinary cotton or linen tape and the ties sewed on.

The advantages are that it is easily put on and off by the patient; that the tension is readily changed, permitting compression as well as immobilization of the lids, and that fresh gauze can be put in as often as it becomes soiled, which is quite an item when the patient is not seen daily; that it can be readily cleaned by the patient with a little soap and a hand-brush and is easily sterilized, and that it does away with the hot bandages around the head and is, therefore, much cooler, more sanitary and altogether more pleasing to the patient than any form I have ever used. I have been using this form for over three years now and find it very satisfactory, indeed.

The universal form (Fig. 1) is suitable for either eye, but for purposes of compression the rights and lefts are more desirable.

Figure 2 shows a double shield above and below it one for the right eye.

Figure 3 shows the right shield (without gauze) in position, the lower tie passing under the right ear and the upper tie above, one passing through the loop and being tied on the left side of the head; the shield can readily be loosened or tightened to suit the comfort of the patient.

The shield can be bent in any shape so as to fit down snugly over the nose and cheek; it is deep enough to permit the use of a large pad of cotton gauze.

Fig. 3.—Patient wearing eye shield.

As a postoperative bandage this shield is invaluable; in purulent conjunctivitis it can be used without gauze and yet protect the eye from being touched, thereby preventing the infection from being carried to the other eye—a very important point to consider in children.

Since the cost is trivial a shield is used only once.

211 Empire State Building.

A METHOD FOR COUNTING BACTERIA IN THE BLOOD

FRANCIS T. B. FEST, M.D.
WITH THE COLLABORATION OF
H. J. HOAG, M.D.
LAS VEGAS, N. M.

The pipette, in use for the leucocyte count with the Thoma-Zeiss hematocytometer or its modifications, is filled in the usual manner, blood being drawn to the 0.5 mark and the melangeur filled to 11. For the dilution we use a solution of 2 per cent. sodium citrate and 1 per cent. of sodium chlorid in water. Of this diluted blood, 1 milligram is measured with an accurate hemato-

crit scale or a specially marked, fine pipette. This milligram is distributed over a warmed slide in fine drops deposited in a row. About eight droplets usually will use up this quantity of dilution.

It is of the greatest importance to make the droplets as small as possible. The drop-films are allowed to dry well. They are next fixed with a mixture of 3 per cent. acetic acid in alcohol. No heat must be applied. When fixed thoroughly the films are stained intensively with borax-blue. Several slides are prepared in the same manner.

The number of bacteria in each film is counted separately and all added together. This counting will be easy if the films are small. The sum total of the bacteria is divided by the number of slides used and multiplied by twenty. The result is the number of microorganisms in 1 milligram of the blood.

While borax-blue is not a differential stain, differentiation must be done in each case before the count is undertaken either by suitable special stains or cultures. It is best for the differentiation of tubercle bacilli or pneumococci to apply the Gram- or the Spengler-stains. In order to obtain a large quantity of the blood-dilution, the diluting can be done in a properly graduated tuberculin syringe. This enables the beginner to prepare a large number of slides and to select those with the finest drop-films.

It stands to reason that it is well to prepare and to count a fairly large number of slides, because the average obtained thereby will give a more exact result than if only few slides are counted.

National Pythian Sanatorium.

Therapeutics

PSYCHOTHERAPY

Discussion of this broad subject is not attempted here, but it is intended simply to point out the necessity for a better general understanding of the subject by physicians. No one to-day questions, if there ever was any question, the power of the mind over the body, and its interpretation of functional disturbances, abnormal conditions, and pathologic processes. It is true that the so-called neurotic diathesis, or condition, is on the increase, this of necessity from the kind of lives that are led in civilized regions. It is also a fact that with a better understanding of disease and pathologic processes unavoidably mental conditions occur that so misinterpret functional disturbances that the physician is fooled, by the patient's description of symptoms, into the belief that pathologic processes are actually present. Such patients naturally are not benefited by specific treatments directed toward the pathologic process supposed to be present, and consequently pass from physician to physician, and are finally cured by some one of the many unscientific methods of appealing to the mind.

It should be understood in interpreting apparently wonderful cures by mental impression that, in the first place, such cures have always occurred since there has been a history of man. Also, there is no disease or condition, however conclusive the diagnosis and hopeless the prognosis may be, but that occasionally has shown miraculous recovery. Therefore, there is no unscientific treatment of patients but that has had its ordinary cures and its apparently wonderful cures, but only the celestial recorders know the hundreds and thousands of failures and the dire disaster that has been caused by such unscientific methods.

All successful physicians appeal more or less to the minds of their patients in establishing a cure, recovery or improvement of any disease or abnormal condition that may be present. Most physicians use tangible means to aid in securing mental improvement and causing mental strength in patients who need mostly mental treatment. Such methods, whether by placebos, electricity, baths, physical therapies of varying kinds, climate, travel, change in diet, or periods of rest, have all done good work for years.

It has been almost an insult to a patient to tell him or her, and generally her, that there was nothing the matter with her except as she thought it. This was not only so considered by the patient, as she "guessed she knew how she felt," but was also considered an insult by the family, and another physician would be obtained who did not so bluntly tell the truth. The development of an age in which the patient and her family must know all of the scientific and pathologic truths in regard to her condition, and the various mind curists having lauded their methods of treatment at this same time (self-drugging and "patent medicine" taking, and the strong harmful ingredients that were contained in "patent medicines," all being described to the public as vicious) have made the patient and the family more willing to be told that nothing is the matter with her except mental disquietude, or psychologic misinterpretation. Therefore, the opportunity for the growth of mental training, which has had its basis on splendid study and research by the scientists in this line, has arrived, and the necessity for such scientific treatment of neurotic, nervous, neurasthenic and hysterical patients is unquestionable.

Unfortunately, until the lay education has gone a little farther, patients and their families are more willing to be told that they need no treatment, other than mental, by unscientific, uneducated and mercenary practitioners than by the honest physician. They are also more willing to try a drugless treatment of disease prescribed by a quack than they are when such treatment is prescribed by a physician. This, however, is only a stage in educating the public to recognize the ability of the trained physician to treat, improve and to cure generally his patients, mentally and physically, more rapidly and more surely than any non-religious, pseudo-religious, half-medical, dietary, non-dietary, or sheer mercenary quack on earth.

There is danger in all mental treatments, whether exercised by those of particular kinds of faith, practicing under particular kinds of title, or whether by so-called church movements in which men educated in lines other than medicine take up the treatment of medical conditions. It is perfectly absurd to consider that disturbance of a kidney is medical and disturbance of a mind religious. There is no question that religious or mental ecstacy or self-hypnosis developed in any way by church movements, or other, may prevent a patient (or even cure him) noticing disturbances that are functional, pain that is neuralgic or even symptoms of organic disease, but as the religious healer or curer, or mental trainer has not studied pathology, and the patient has not studied pathology, and neither of them can differentiate the indications of a serious, or even contagious, disease from mental crookedness causing telegraphic messages or even wireless messages to different parts of the body, such methods of treatment are dangerous to individuals and to a community.

The clergyman, who visits a home where there is sickness, in conjunction with the physician, bringing

hope, mental help, good will and cheer to the patient and family, makes the treatment of the illness ideal. A physician who does not treat, aid or help the mental part of his patient's entity should not practice medicine. On the other hand, the clergyman who attempts to treat patients who claim to be ill, without an examination and diagnosis having been made by a physician, is criminally careless, and should no more be allowed to practice in this manner than is a physician allowed to write a prescription without having successfully passed a state examination. Either is dangerous to the community.

It can not be denied that some men, and they may be theologians, have more hypnotic power than many medical men. They are accustomed to control mentally, as well as more or less successfully religiously, their parishioners. They talk forcefully and lead well, and ideally they are in many instances admirably fitted to teach mental strength, but they should study pathology and thoroughly recognize the limitations of their ability to cure, should always have a patient examined by a physician before they attempt to treat him or her mentally, and should never so exalt or stimulate individuals of a family to the point of physical and medical neglect of other members of that family who may need the care of a physician or surgeon.

It is also perfectly true that while some medical men have force sufficient to control hypnotically and to give mental strength to the patients whom they are treating, others have not such forcefulness, and they, in individual instances, should call to their aid a man who is able to train the patient's mind.

The main point that it is desired to enforce is that physicians as a whole are entirely unqualified scientifically to treat a patient psychically, i. e., psychotherapeutically. Men who have devoted years to scientific investigations of mental training and to the study of the human mind and to the management of patients who are ill mentally only (and by this is not meant insanity) should be consulted when a patient needs psychotherapeutic treatment only. Physicians should prepare themselves by a careful study of the science of psychotherapeutics, beginning with its fundamentals and then work gradually up to the actual practice before they are ready to treat psychologically to the best advantage of the patients. The best medical schools, hospitals and dispensaries are beginning to instruct the students and internes on this subject. Unfortunately, the clinical material that comes to public institutions is not mentally similar to patients whom one sees in private practice.

Patients who are neurasthenic are not necessarily best treated psychotherapeutically. While the majority of them do well so treated, and all may need some of such treatment, the diagnosis of neurasthenia by no means necessarily means that there is nothing the matter with the patient but mental disturbance. Loss of weight is always an indication that the patient is below par, and it certainly should be the physical and mental object of the physician to build this patient up to normal. Mental fatigue certainly predisposes to physical ailments and an exaggerated interpretation of physical ailments. Consequently, patients in whom such mental fatigue is diagnosed should be mentally rested, and not mentally stimulated to believe that nothing ails them but as they think it.

The interpretation of the self-same injury to sensory nerves varies greatly in different individuals. Consequently, to decide that a patient does not suffer the amount of pain he claims he does, because in the physician's or in the layman's experience such injury causes only half the amount of pain that is claimed, is unfair to the patient. It may be true that the pain is grossly exaggerated, but it should be remembered that neither the physician nor the bystanders really know, and the patient should be given the benefit of the doubt. It is, however, perfectly true that a given individual may apparently suffer twice the pain at one time which he has suffered at another time from the same condition or injury. This may be due to mental tire, to mental excitation, or to loss of mental control. If acute pain is actually suffered, mental treatments, even to the attempt to produce hypnosis, are of but little avail. The mental stimulation, education and treatment should be given during the interims from actual pain.

The Weir Mitchell rest cure of neurasthenic and hysterical patients is of vast benefit in many instances, of some benefit in most instances, but occasionally signally fails. It requires the most careful discernment and discrimination to decide whether, in the individual instance, the patient should receive the "rest cure." At times patients who are introspective, who are not mentally weary, and whose nutrition is pretty good, are positively injured by such treatment. Such patients need mental training given by some one who is educated in that line of treatment. Other patients, with symptoms of physical and mental debility, and who are surrounded with worries and frets, recover only by prolonged rest, and best in a sanatorium prepared to treat such patients. Such treatment, however, is the most successful when the attending physician and the physician in charge recognize the power of physical treatments, mental stimuli and mental training more than the mere rest and medicine.

If the physician decides that the patient has no organic or serious functional disturbance and that the symptoms are produced by mental mistakes, and he decides that he has the mental forcefulness, power, understanding, and training sufficient to treat this particular patient, it is wise first to explain to the patient the nature of the condition and the reasons that certain symptoms occur, their lack of seriousness, and the absence of any pathologic excuse. Individual disagreeable symptoms should be modified by any physical or medicinal treatment that seems necessary, such medicinal treatment being stopped just as soon as possible, and the patient's mind trained to overcome the disturbing symptoms that called at first for treatment. The mind of the patient should be trained to think in lines that are not personal, and to take up lines of thought or study that will keep healthy parts of the brain so interested or satisfied that the parts that have to do only with physical sensations are less important, overlooked, or controlled. It is well also to arrange the patient's life so that the day will be busy. All this part of the treatment must be individualized to change the thoughts, habits, and interests of the individual patient. It is perfectly true that placebos and various physical treatments, such as varying kinds of electricity, must be used more by the physician than when the same patients are treated by quack methods, because the latter methods are surrounded by mystery and the mind of the patient receives the stimulus of hope and recovery because the methods are so strange and mysterious. This is only going back in mental beliefs to the dark ages, and man has not even now overcome his association of disease and cure with the Devil and magic.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 DEARBORN AVENUE . . . CHICAGO, ILL.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

[For other information see second page following reading matter]

SATURDAY, OCTOBER 30, 1909

THE CONVEYANCE OF BACTERIA BY SEWER-AIR

For years after Murchison announced, in 1858, that typhoid fever was produced by emanations from decaying organic material, sewer-gas was held responsible for many infectious diseases. The cause of the large mortality from "zymotic" disease in cities by many was traced largely to sewer-gas poison. While other causes were not wholly excluded, to bad plumbing was attributed the principal part in causing "pythogenic" pneumonia, peritonitis, inflammatory rheumatism, typhoid and malarial fevers, croup, diphtheria and many kindred diseases.

According to the germ theory of disease, sewer-air can cause infectious diseases directly only by the conveyance of germs, and the question whether it actually does convey germs has received much attention. Bacteriologic examinations of the air in sewers showed it to contain only a small number of bacteria, and these were common to street air rather than to sewage. These results, coupled with the absence of any reliable indications from the study of epidemics in favor of transmission of infectious agents by sewer-air, led many sanitarians to conclude that the danger of such transmission was small enough to be disregarded. But the recent experiments of Major Horrocks of the English army gave results which served to revive the suspicion that sewer emanations may be the cause of mysterious outbreaks of disease. He introduced known bacteria, such as the *Bacillus prodigiosus* and the *Bacillus coli*, into drainage systems, in the upper parts of which he exposed dishes of culture media. He thus recovered his test bacteria in various parts of the systems, in one case even at the height of fifty feet above the traps, showing that specific bacteria present in traps and drains can get into the air above by splashing and bursting of bubbles and, in some experiments, possibly even from the surface of liquids apparently in quiet motion.

In view of the apparent difference between the results of Horrocks[1] and those of previous investigators (Miquel, Haldane, Laws and Andrewes, and others), Winslow,[2] at the instance of the Sanitary Committee of the National Association of Master Plumbers, investigated the question of bacteria in sewer-air. Winslow's early experiments gave results like those of Horrocks to the effect that bacteria may pass from sewage into the air above and be carried for considerable distances. The proportion of positive results, however, was small and it was determined to use quantitative methods. The bacteria that happen to fall on plates exposed, as in the method used by Horrocks and later by Andrewes, to the air in sewers are not related to any particular volume of air. Winslow used a new method, by which the bacteria in a measured volume of air drawn into large culture-bottles are allowed to settle on media in the bottom of the bottles. Foaming bacterial emulsions were poured rapidly into water-closets and samples of air collected at the crown of the upper trap. Here everything now was favorable for the discharge of bacteria into the air, but, of forty-four liters of air examined, forty-three did not contain any bacteria. One liter showed a group of eleven colonies, derived perhaps from a single infected droplet. The actual conditions as they exist in different plumbing systems were next studied. The pipes were tapped at various places, and in each case ten one-liter samples of air were drawn into culture bottles. In one hundred and ninety-seven satisfactory tests of this kind, forty-eight samples gave bacteria capable of development at 37 degrees C.; only four contained sewage bacteria, and in collecting these samples of air mechanical spraying of sewage took place at the point of collection. The results of Winslow's experiments consequently support Horrocks in so far as they show that bacteria may be ejected from liquids in sewers into the air above, but at the same time they show that the general air of house drainage systems is singularly free from bacterial life.

The sum and substance of the matter seems to be that bacteria may pass from sewage into sewer-air, but only in such small numbers as scarcely to affect its general composition. There is, therefore, little reason to believe that sewer-air needs to be feared as a means of conveying infectious diseases.

1. Recently the results of Horrocks were confirmed by Andrewes, who used the same methods.
2. Am. Jour. Pub. Hyg., 1909, xix, 640.

THE SPAN OF HUMAN LIFE

It is often asked if men do not live longer now than formerly—if the length of human life is not actually increased? It is evident that two distinct problems may be hidden in this question as it is ordinarily put. The first relates to what may be called the natural term of existence. The duration of a normal life not cut off by accident or infectious disease was placed by the Psalmist at about threescore years and ten; seventy or eighty years is, indeed, to-day commonly reckoned as the normal life.

There seems to be no reason for supposing that within historical times man's natural term of life has materially varied. Like that of the dog or the horse, it is determined by unknown biologic causes. While some statements in old documents might be taken to indicate that in antiquity men lived hundreds and even thou-

sands of years, such assertions appear to be based on wrong interpretations of time-units or on pure fable. It has been alleged that a larger proportion of persons lived to reach the age of 100 years at certain earlier periods than at the present day, but this belief rests on an equally insecure footing. As is well known, the investigation of alleged instances of centenarianism has shown that many of these cases will not stand examination and that some even are examples of deliberate fraud supported by such devices as the substitution of birth certificates.

Unimpeachable records of the proportion of long-lived individuals to the total number of persons in the community do not exist for any considerable period. So far as the meager modern statistics go, they indicate that the proportion of 5-year-old children who live long enough to reach their eightieth year is really not greater now than it was at the beginning of the nineteenth century.

Quite different is the answer to the second question implied in the ordinary inquiry concerning an increase in longevity. A new-born child has certainly a better chance of living a long life now than he had even a few years ago. This may be shown in various ways. The remarkable decrease in mortality during the first five years of life is especially well known. In practically all civilized countries a decline in the death rate among young children has been observed and is apparently still taking place.

In Germany, for an example, 290 out of every 1,000 living new-born children died during the first five years of life in 1890, since which year the number of deaths in the same age-group has sunk to 230. It is a matter of common knowledge also that the average mean duration of life has appreciably risen in the last half century and in some countries has increased at a rate of about two years in each decade. In Norway and Sweden, where statistics show the infant mortality to be very low, the average duration of life is now as high as 52.25 years!

A particularly important measurement of improvement in the conditions of life consists in the determination of the lengthening of the working period, for example the years between 15 and 60. There seems to be taking place a steady increase in the number of persons able to live through this important span. In Sweden and Norway the average number of years lived by each 15-year-old child was 35½ (out of a possible 45 on this method of reckoning) at the beginning of the nineteenth century, while it was 38½ at the close. In Germany an almost equally great improvement is said to have occurred within two decades. It is not, therefore, alone in the earlier years of life that a genuine reduction in mortality has taken place. The average duration of human life is greater, even though the natural term of existence has not been altered. In this sense human life may be said to have been materially prolonged within historic times.

PHARMACOPEIA REVISION

We publish this week under "Correspondence" a letter calling attention to the reports on the Pharmacopeia of three committees of sections of the Association.[1] As our correspondent remarks, these reports furnish much food for thought to physicians interested in the development of sane drug therapeutics; and what physician is not interested in this subject? The recommendations contained in these reports came from men actively engaged in the practice of medicine—those, in fact, who are bearing the brunt of the battle against disease. Their opinions are worthy of careful consideration even by those who are not especially interested in the purpose for which the reports were primarily prepared. The fact that so many of the members of the Section on Ophthalmology, for example, state that they have found certain drugs of very distinct value and others of little or no use is an item which should prove of great interest to their colleagues. The primary object of these section committees is to collect material which will indicate to the Committee on Revision the desire of the medical profession concerning the scope of the Pharmacopeia.

The reports have a special significance, as they show a tendency on the part of physicians to assume again their share in the important work of revising the Pharmacopeia. That physicians have in recent years greatly neglected this is a matter of common knowledge; that the result has been unfortunate is also well known. The chemical and pharmaceutical part of the work of revision has been exceptionally well done, but the medical part (which, in the words of the founders of the Pharmacopeia, should be "to point out those articles of medicine which they (the physicians) shall ordinarily employ") has been less successful; this is sufficiently evidenced by the protests which have been made against the retaining of many of the preparations which were admitted less than five years ago.

The methods pursued concerning admissions by the last Committee on Revision are not such as to appeal to the medical profession; the committee was all too willing to yield to what was represented to be the wishes of physicians and evidently took little trouble to inquire how extensive or how well founded these wishes were. In fact, a member of the Committee on Revision expressed the view that if a large number of physicians habitually used brick-dust, believing it to be a remedial agent, then brick-dust should go into the Pharmacopeia. With the Committee on Revision holding this view (just how the representatives of the medical profession reached such a view of their functions we do not understand) it is not surprising that a number of preparations of ephemeral interest, or fads, as a member of the Committee on Revision termed them, were admitted. This passive attitude reminds one of the frequently heard argument that any demand, however pernicious it may be or however artificially it may have been

1. These reports were published in THE JOURNAL, Sept. 4, 1909, liii, 791-796.

created, should be supplied. Such reports as these of the section committees should stimulate discussion as to the real value of some of the new drugs and aid materially in making the Pharmacopeia more representative of the best (not the worst) in the practice of medicine.

THE SCIENTIFIC MESSAGE OF THE YEAR

Probably the most important annual message delivered in the English-speaking world of science—and it is, indeed, eagerly looked for throughout all the scientific world—is the address of the president of the British Association for the Advancement of Science. The annual presidential address was delivered by Professor J. J. Thompson, the distinguished British physicist. The whole address[1] is well worth perusal by physicians who are interested in general science and by educators of all classes, whether especially interested in science or not.

Though far from pessimistic as to the future, Professor Thompson sees in modern education two tendencies which do not favor the development of investigating scientists and original discoverers—or, indeed, of broad and well-balanced men and women. One is the tendency away from the concrete and practical to mere bookishness; the other is the tendency to premature and excessive specialization.

Professor Thompson's experience has taught him that the mental activity required for the supposedly intellectual process of reading may be extremely slight, and the educational value correspondingly small. He says: "It is possible to read books, to pass examinations, without the higher qualities of the mind being called into play. Indeed, I doubt if there is any process in which the mind is more quiescent than in reading without interest. I might appeal to the widespread habit of reading in bed as a prevention of insomnia as a proof of this. But it is not possible for a boy to make a boat or for a girl to cook a dinner without using brains. With practical things, the difficulties have to be surmounted; the boat must be made water-tight; the dinner must be cooked; while in reading there is always the hope that the difficulties which have been slurred over will not be set in the examination."

In the second place, Professor Thompson feels that overspecialization, especially too early in life, can do only harm to the individual—and much more to science itself—by lessening the enthusiasm of the investigator. He says:

"Premature specialization . . . injures the student by depriving him of adequate literary culture, while when it extends, as it often does, to specialization in one or two branches of science, it retards the progress of science by tending to isolate one science from another. The boundaries between the sciences are arbitrary, and tend to disappear as science progresses. The principles of one science often find most striking and suggestive illustrations in the phenomena of another."

Successful research, Professor Thompson believes, requires not merely training, skill, patience and labor, but abounding faith and enthusiasm. His own message is the more valuable, therefore, because he feels that the present is a time of quickening—a Renaissance in science—and that we have left behind the pessimism of twenty years ago, which believed that all the interesting things had been discovered, and that all that was left for science was the dreary task of altering a decimal or two in some physical constant. "There never was any justification for this feeling," he proclaims; "there never were any signs of an approach to finality in science. . . . As we conquer peak after peak we see in front of us regions full of interest and beauty, but we do not see our goal, we do not see the horizon; in the distance tower still higher peaks which will yield to those who ascend them still wider prospects and deepen the feeling, whose truth is emphasized by every advance in science, that 'great are the works of the Lord.'"

1. Science, Aug. 27, 1909, new series, xxx, 257.

THE SURFACE PRIVY AS A FACTOR IN SPREADING HOOKWORM DISEASE AND TYPHOID FEVER

Charles W. Stiles in a recent article[1] calls attention to the faulty disposal of excrement as the chief factor in producing the soil pollution which makes hookworm infection possible. Of 366 farm houses scattered over four southern states, it was found by actual count that only 115 houses, or 31.4 per cent., were provided with privies, while 251 houses, or 68.5 per cent., had no privy. Even when the privy is present it frequently affords little protection against soil pollution, because not properly built or not properly cleaned. The improper construction of the privy favors the spread not only of hookworm disease but of typhoid as well. While the cure of hookworm disease is of vast economic importance for the South, the reform of the insanitary conditions and habits that make this disease possible is of far greater importance, since it means a great lessening of typhoid and other infections, and such reform is applicable to a certain extent to the whole country. As Dr. Stiles says: "To do away with this soil pollution is not only in the interest of the public health, but also in the interest of the further economic development of the South, especially on the farms and in the textile industries." It is to be hoped that the economic argument may so reenforce the sanitary that a genuine reform in the habits of the agricultural population may be effected.

1. Public Health Reports, Oct. 1, 1909, xxiv, No. 40.

Medical News

CALIFORNIA

New Case of Bubonic Plague.—The second case of plague reported to have developed within two months in Alameda county, has been reported and diagnosed, and the diagnosis has been confirmed by Surgeon Rupert Blue. The patient was a boy who is said to have caught, played with, and ate ground squirrels, which are known to be carriers of the plague. The patient died. The first of the patients from Alameda county died in the County Hospital, August 19.

Personal.—Dr. Charles B. Pinkham has been appointed chief surgeon of the Central Emergency Hospital, San Francisco, vice Dr. Wallace I. Terry, resigned.——Dr. Louis A. Frary has been appointed second assistant physician of the Napa State Hospital, vice Dr. Leonard M. Pulsifer, resigned, and Dr. J. Rodgers, Alameda, has been appointed third assistant physician.——Dr. Frederick W. Reynolds has succeeded Dr. William A. Weldon as surgeon of the Southern Pacific Railroad Company at San Pedro.——Dr. Cullen F. Welty, San Francisco, has returned from Europe.

ILLINOIS

Banquet to Dr. Norbury.—Dr. Frank Parsons Norbury, who has been appointed superintendent of the Kankakee State Hospital, was given a banquet at Jacksonville, October 15, by the Morgan County Medical Society and the Jacksonville Medical Club. The banquet was served at the Pacific Hotel, and Dr. Carl E. Black acted as toastmaster.

State Charities Conference.—At the fourteenth annual session of the Illinois Conference on Charities and Corrections, held in Peoria, October 9-12, William C. Graves, secretary of the State Board of Charities, was elected president; Mrs. Ophelia Amigh, Geneva, vice-president; Sherman C. Kingsley, Chicago, secretary; Ray Arnold, Galesburg, assistant secretary; and F. Emery Lyon, Chicago, secretary of the executive committee. The conference adopted a resolution urging a law for adult probation; the ten-hour day for women in factories; medical inspection of public schools; a large number of parole officers under civil service; establishment of a state epileptic colony; and the observance of the last Sunday in October as Prison Sunday by all religious denominations.

Chicago

Personal.—Dr. Ralph Edward Sheldon, associate in anatomy in the University of Chicago, has been appointed assistant professor of anatomy in charge of histology, embryology and neurology in the University of Pittsburg Medical School.

Delegates to Children's Conference.—The following physicians have been named by the mayor to attend the Conference on the Prevention of Infant Mortality, to be held at Yale University, November 11 and 12, under the auspices of the American Academy of Medicine: Drs. William A. Evans, Isaac A. Abt, Thomas A. Woodruff, Casey A. Wood, Frank X. Walls, Charles R. Henderson, Frank S. Churchill, Caroline Hedger, Joseph Damiani, George C. Hunt, Joseph P. Cobb and Stephen R. Pietrowicz.

KENTUCKY

State Board Changes.—Dr. Joseph M. Mathews, Louisville, who has served eighteen years as president of the State Board of Health, resigned October 18, and the board elected Dr. William Bailey as president. Under the law governing the State Board of Health, the governor must appoint members from a list of three names suggested by the state medical association, and the House of Delegates, at its first meeting, recommended to the governor the names of Drs. Joseph E. Wells, Cynthiana; Isaac A. Shirley, Winchester; and Charles Z. Aud, Cecilian. The board took up the charges against Dr. Melvin Rohrer, Lexington, formerly first assistant superintendent of the State Insane Hospital, for alleged malpractice, and decided that Dr. Rohrer was guilty and revoked his license to practice, and decided to urge the next legislature to enact a law punishing physicians guilty of criminal operation.

State Association Meeting.—At the fifty-fourth annual meeting of the Kentucky State Medical Association, held in Louisville, October 19-21, there were 651 members who registered. The following officers were elected: Dr. Joseph E. Wells, Cynthiana, president; Drs. Philip H. Stewart, Paducah; James O. Carson, Bowling Green; and James S. Lock, Barbourville, vice-presidents; Dr. David O. Hancock, Henderson, orator in medicine; Dr. George A. Hendon, Louisville, orator in surgery; and Drs. Walter F. Boggess, Louisville, and Benjamin F. Van Meter, Lexington, delegates to the American Medical Association. The House of Delegates endorsed the good-road movement in Kentucky and passed strong resolutions against the practice of criminal abortion; endorsing the establishment of a medical department in the State University, petitioning the legislature and board of trustees of the university to provide such means and ways as will establish a new era for higher medical education. Lexington was selected as the place of meeting for 1910.

MARYLAND

Society Meeting.—At the annual meeting of the Washington (D. C.) Clinical Society, at Rockville, October 16, Dr. M. A. Custis was elected president and Dr. J. R. Sharp secretary.

Ladies Entertained.—The Ladies' Auxiliary of the Medical and Chirurgical Faculty of Maryland gave a reception to the ladies of the society at Medical Hall, at which Dr. Eugene F. Cordell, on behalf of the faculty, outlined the plans of the Widow's and Orphan's Home Fund, and spoke on what had been accomplished.

Baltimore

Personal.—Dr. George M. Settle was operated on at University Hospital, October 20, for appendicitis.——Dr. J. Hall Pleasants will spend the winter in the Adirondacks.

Mayo to Lecture.—Dr. Charles H. Mayo, Rochester, Minn., will deliver two lectures on "Diseases of the Thyroid Gland," at the University of Maryland, November 9 and 10. On academic day, November 11, the degree of LL.D. will be conferred on Dr. Mayo by the university.

MASSACHUSETTS

Contagious Disease Hospital.—Both branches of the Cambridge city government gave a hearing October 19, on the question of appropriating $100,000 for a hospital for contagious diseases. The medical inspector of the health board estimated the cost of the proposed building, including two wings, at $80,000.

Elections.—The Massachusetts Society of Examining Physicians held its annual meeting in Boston, October 19, and elected the following officers: President, Dr. Francis D. Donaghue (reelected); vice-presidents, Drs. Frank E. Allard, Edward M. Greene, and Timothy Leary; secretary, Dr. A. Carlton Potter; treasurer, Dr. Henry M. Chase, Jr.; and council, Drs. Frederick M. Briggs, Benjamin Tenney, Edward B. Lane, John L. Ames, and T. J. Hanley, all of Boston.——The Brookline Medical Club has elected the following officers: President, Dr. Henry V. McLaughlin; vice-president, Dr. George W. Kaan, and secretary-treasurer, Dr. H. Hale Powers.——At the annual meeting of Holyoke Medical Society, held October 12, the following officers were elected: President, Dr. Thomas E. Cavanaugh; vice-president, Dr. George D. Henderson; secretary-treasurer, Dr. George C. Robert; and executive committee, Drs. George L. Taylor, Joseph H. Potts, and John J. Carroll.

MINNESOTA

Personal.—Dr. George M. Doran, St. Paul, is critically ill in St. Joseph's Hospital, from a bullet wound of the abdomen.——Dr. Charles E. Smith, Jr., has been appointed second assistant physician of St. Paul and Ramsey county, and Dr. Elmer M. Jones has been made first assistant, vice Dr. Adolph Stierle, Jr., term expired.

State Association Meeting.—The annual meeting of the Minnesota State Medical Association was held in Winona, October 12-14. The following officers were elected: President, Dr. William A. Jones, Minneapolis; vice-presidents, Drs. Frank W. Dimmitt, Red Wing; Hugh F. McGaughey, Winona; and Charles W. Bray, Biwabik; secretary, Dr. Thomas S. McDavitt, St. Paul (reelected); treasurer, Dr. Richard J. Hill, Minneapolis; and councilors, Drs. Eugene A. Hensel, Alexandria, Frederick A. Knights, Minneapolis, and Franklin A. Dodge, LeSueur. The 1910 meeting of the association will be held in Minneapolis.

MISSOURI

Personal.—Dr. Arthur B. Freeman has been elected chairman, and Dr. Mary L. Mack, secretary of the Joplin Branch of the Jasper County Medical Society.——Dr. Harold R. Lucas, division and examining surgeon for the Frisco System at Chaffee, has resigned and entered private practice in Joplin. Dr. George A. Sample has been appointed his successor.

St. Louis

Personal.—Dr. Albert E. Taussig has taken charge as editor of the *Weekly Bulletin of the St. Louis Medical Society*.——Drs. H. Jackson Harrell, Martin C. Woodruff and George W. Flinn have been appointed vaccine physicians, and Dr. Fred Gunn has been appointed junior assistant physician at the City Hospital.——Dr. and Mrs. William W. Graves have returned from Europe.——Drs. John McH. Dean and Louis Rassieur have been appointed surgeons-in-charge of St. Mary's Infirmary, vice Dr. William A. McCandless, resigned.

Proposed Sanitary Ordinances.—The Municipal Commission on Tuberculosis has prepared ordinances providing for the establishment of an emergency hospital for the care of persons afflicted with acute contagious and infectious diseases, and transferring the appropriation for the maintenance of the smallpox and quarantine hospital to the maintenance of

this hospital; making provision for the exclusive use of Building "A" of the City Hospital for the care and treatment of advanced cases of tuberculosis; providing for the conversion of the present quarantine and smallpox hospital into a tuberculosis sanatorium; providing for the establishment of two clinics at the eastern ends of the fourth and second sanitary districts for the free treatment of persons afflicted with tuberculosis; providing for the appointment of seven nurses to visit consumptives in their homes; providing for the appropriation of $10,000 for the relief of indigent consumptives; providing for the payment of part of the salaries of city employés while undergoing treatment in the hospital or sanatorium; the abolition of the common drinking cup in the city; providing for the proper ventilation of street cars; providing for the medical inspection of children for the prevention of contagious and communicable diseases, and for the correction of physical defects, and providing that persons afflicted with tuberculosis, applying to the city for treatment in hospitals or dispensaries, or for relief in their homes, shall not be considered as paupers.

NEW YORK

Branch of State Laboratory at Cornell.—A branch hygienic laboratory has been established by the State Department of Health at Cornell University, Ithaca. It is located on the ground floor of Lincoln Hall, and will be in charge of Dean Haskell, and Prof. H. N. Ogden, hydraulic expert for the health department.

District Society Meeting.—The Medical Association of Central New York, held its forty-seventh annual meeting in Auburn, October 19. Dr. Frederick W. Sears, Syracuse, was elected president and Dr. Wesley T. Mulligan, Rochester, vice-president. Dr. Robert T. Morris, New York City, discussed the surgical treatment of appendicitis.

New State Insane Hospital.—A new hospital for the insane is to be established on Lake Mohansic, seven miles from Peekskill, where a site has been purchased for $135,000. The hospital will take care of the overflow of the other New York City and state insane institutions. The buildings are to cost $1,000,000 and will accommodate 2,000 patients.

New York City

The Carpenter Lecture.—Dr. Howard T. Ricketts of the University of Chicago, delivered the Wesley M. Carpenter Lecture before the New York Academy of Medicine, Thursday, October 21, on "Spotted Fever."

Lectures on Skin Diseases.—Dr. L. Duncan Bulkley will give an eleventh course of clinical lectures on diseases of the skin at the Skin and Cancer Hospital on Wednesday afternoons at 4:15, commencing November 3. The course will be free to the medical profession.

Harvey Society Lectures.—The course of lectures of the Harvey Society for 1909-1910 will begin at the Academy of Medicine, October 30, at 8:30 p. m., when Prof. Richard M. Pearce of University and Bellevue Hospital Medical College will read a paper on "The Problems of Experimental Nephritis."

OHIO

State Board Elects.—The Ohio State Board of Health, at its meeting, October 14, elected the following officers: President, Dr. Jefferson C. Crossland, Zanesville; vice-president, Dr. William T. Miller, Cleveland; and secretary, Dr. Charles O. Probst, Columbus.

Personal.—At a meeting of the Lima Antituberculosis League, October 6, Dr. William E. Hover was elected president. ——Dr. Mason O. Wert, Poplar, has started on a trip around the world.——Dr. Joseph A. Murphy has been appointed coroner of Columbus, during the absence of Dr. William F. Bay.——Dr. George S. Weger, Delphos, has been elected a member of the school board.——Dr. and Mrs. Curtis Laughlin, Steubenville, have returned from Europe.

Colleges Open.—The Cleveland College of Physicians and Surgeons, Medical Department of the Ohio Wesleyan University, opened for its annual session, October 11. The following faculty changes were announced: Dr. Roland E. Skeel has been made professor of gynecology; Dr. Arthur J. Skeel, professor of obstetrics; Dr. John F. Davidson, professor of anatomy; Dr. Augustus F. House, clinical professor of surgery; Dr. Harry B. Kurtz, professor of dermatology; Dr. John V. Gallagher, professor of surgery; Dr. Walter B. Laffer, professor of mental and nervous diseases; Dr. Ralph K. Updegraff, associate professor of physical diagnosis; and Dr. Willard C. Stouer, lecturer and demonstrator of microscopy. ——The Medical Department of Western Reserve University opened for its annual session October 1.

Cincinnati

College Opens.—The formal opening exercises of the new Ohio-Miami Medical College were held October 2. The introductory address was given by President Dabney, and Dr. Charles A. L. Reed spoke on "The Modern Medical College."

Personal.—Drs. Woolley and Wherry have been placed in charge of the newly organized department of pathology in the Cincinnati Hospital.——Dr. E. G. Betty has been appointed dental and consulting surgeon at the City Hospital, vice Dr. W. H. Kempton.

PENNSYLVANIA

Aid to the Tuberculous.—A gift of 450 acres of land was made to the State of Pennsylvania, absolutely free of any incumbrance, for use as the site of a new sanitarium for the gratuitous treatment of tuberculosis patients, October 20, by Mr. Andrew Carnegie, through the State Commissioner of Health, Dr. Samuel G. Dixon. The land is located at Cresson, Cambria county, and is 2,400 feet above sea level. The tract possesses scenic views unsurpassed by any spot in the state. It is on the main line of the Pennsylvania Railroad and about one hundred miles east of Pittsburg, and, therefore, very acceptable. It is said that the gift will be accepted. Dr. Dixon made a careful inspection of the site October 23.——A site for the Berks County Tuberculosis Sanatorium has been secured by the purchase for $8,000, the Centennial Springs Hotel on the southern slope of the Neversink mountains, and in addition Rev. George Borneman, pastor of St. Paul's Catholic Church, has given the Neversink Hotel property adjoining. ——The grand total of receipts for Tuberculosis Day at Reading amounted to $10,613.20.

Philadelphia

Personal.—Dr. Paul R. Walters has been appointed assistant demonstrator of physical diagnosis and assistant demonstrator of pharmacy and materia medica at Jefferson Medical College.——Dr. Maude M. Rees has been appointed a member of the staff of the State Insane Hospital, Kalamazoo, Mich.

Budget for City Hospitals.—The budget of Dr. Neff for the maintenance of the Philadelphia General Hospital, the Philadelphia Hospital for the Insane, Home for the Indigent, and Philadelphia Hospital for Contagious Diseases, and for the Board of Health amounts to $1,564,831. The committee not only approves the budget, but in place of cutting down any item, added two items to the budget, amounting to $30,000.

Site for Tuberculosis Sanatorium.—The final arrangements for the establishment of a local dispensary for the prevention and cure of tuberculosis, by the recently organized Jewish Consumptive Institute Association, have just been completed by the purchase of a large building at 212 Catherine street. Alterations on the building are to be started at once to make it a modern institution for the treatment of the tuberculous poor.

VERMONT

Society Meetings.—At the ninety-sixth annual meeting of the Vermont State Medical Society, held in White River Junction, October 14 and 15, the following officers were elected: President, Dr. Walter L. Havens, Chester Depot; vice-president, Dr. Edward H. Ross, St. Johnsbury; secretary, Dr. Clarence H. Beecher, Burlington; treasurer, Dr. Bingham H. Stone, Burlington, and auditor, Dr. Anson M. Norton, Bristol. The next meeting will be held in St. Albans. The House of Delegates elected Dr. Archibald J. Valleau, Morrisville, president; Dr. William Lindsay, Montpelier, first vice-president; Dr. Mark R. Crain, Rutland, second vice-president; Dr. Arthur O. Morton, St. Albans, secretary, and Drs. Walter L. Havens, Chester Depot, Clarence H. Beecher, Burlington, and George C. Berkeley, St. Albans, executive committee.——Bennington County Medical Society, at its annual meeting elected Dr. Anselme E. Houle, Bennington, president; Dr. George V. Wager, North Bennington, vice-president; Dr. Lewis H. Hemenway, Manchester, secretary; Dr. Frank W. Goodall, Bennington, treasurer; Drs. Houle, Goodall, and Hemenway, censors; Dr. Hemenway, delegate to the Vermont State Medical Society, and Dr. Lucretius H. Ross, Bennington, alternate.

VIRGINIA

Tuberculosis League Changes Name.—The Tuberculosis League of Lynchburg has decided to change its name to the Health League, and the scope of the organization will be enlarged in keeping with the name. Dr. Ferdinand M. Perrow is president.

County Society Election.—At the annual meeting of the Norfolk County Medical Society, the following officers were

elected: President, Dr. Lawrence T. Royster; vice-president, Dr. Israel Brown, and secretary-treasurer, Dr. D. Lee Hirschler (reelected).——Nansemond County Medical Society, at its annual meeting, in Suffolk, October 13, elected Dr. Japheth E. Rawls, Suffolk, president; Dr. Job G. Holland, Holland, vice-president, and Dr. Edward R. Hart, Suffolk, secretary-treasurer.

New Medical Examining Board.—The following members of the examining board of Virginia have been nominated by the Medical Society of Virginia and commissioned by the governor: At Large—Drs. Rawley W. Martin, Lynchburg, Robert B. James, Danville, and John G. Rennie, Petersburg; First District—Dr. Joseph N. Barney, Fredericksburg; Second District—Dr. Herbert Old, Norfolk; Third District—Dr. Junius E. Warinner, Brookhill; Fourth District—Dr. Otho C. Wright, Jarratt; Fifth District—Dr. Richard S. Martin, Stuart; Sixth District—Dr. Henry W. Dew, Lynchburg; Seventh District—Dr. Philip W. Boyd, Winchester; Eighth District—Dr. Robert M. Slaughter, Theological Seminary; Ninth District—Dr. Elliott T. Brady, Abingdon, and Tenth District—Dr. Robert Glasgow, Lexington.

GENERAL NEWS AND COMMENT

Ohio Valley Meeting.—The Ohio Valley Medical Association will hold its eleventh annual meeting at Evansville, Ind., November 10 and 11, under the presidency of Dr. Curran Pope, Louisville, Ky., the subject of whose address will be "The Problem of Living." The membership of the association includes Kentucky, Ohio, Indiana and Illinois.

Pellagra Conference.—The preliminary program of the National Conference on Pellagra, to be held at the State Hospital for the Insane, Columbia, S. C., November 3 and 4, under the auspices of the South Carolina State Board of Health, includes the consideration of the economic problems of pellagra; the etiology, pathology, diagnosis, and treatment of the disease; the theories as to its causation; statistical reports; the spoiled corn hypothesis; whether or not it is contagious; its relation to insanity and to diseases of other organs. A number of cases will be presented, lantern slides will be shown, demonstrations will be made, and the question of a permanent national organization for the study of the disease will be brought up.

The Christmas Stamp.—According to Ernest P. Bicknell, director of the American Red Cross (*The Survey*, Oct. 16, 1909), the sale of stamps last year netted $135,000 for the campaign against tuberculosis. This season the Red Cross will provide a supply sufficient to meet all needs. A new design, the result of a competition among about 1,200 persons, has been adopted and the stamps will be ready for shipment to agent November 1. The stamp, one inch square, will be in red and dark green with lettering in white, and will be sold for one cent. The stamps are to be sold only by recognized and reliable agents and the proceeds must be devoted to anti-tuberculosis work. The stamps, posters, and printed matter intended to assist in the sale of stamps will be supplied to agents free, the agency to return to the Red Cross the unused stamps and one-third of the face value of the stamps sold. (The Red Cross may be addressed at Washington, D. C.) The privilege of selling the stamps in the corridors of the post offices has been granted this year as last.

Southwestern Physicians to Meet.—The annual meeting of the Southwestern Medical Association will be held in San Antonio, Texas, November 9, 10 and 11. At the same time the Fifth District Medical Association of Texas will hold its annual meeting. An excellent program has been prepared and the fraternity of San Antonio are making elaborate preparation for the meeeting. Dr. Malcolm Lasalle Harris, Chicago, will deliver the oration on surgery, and Dr. George Dock, New Orleans, the oration on medicine.

Railway Surgeons Meet.—At the annual session of the American Association of Railway Surgeons, held in Chicago October 21 and 22, the following officers were elected: President, Dr. Henry C. Fairbrother, East St. Louis, Ill.; vice-presidents, Drs. David Y. Roberts, Louisville, Albert R. Mitchell, Lincoln, Neb., and John P. Kaster, Topeka, Kan.; secretary, Dr. Louis T. Mitchell, Chicago (re-elected), and treasurer, Dr. Henry B. Jennings, Council Bluffs, Iowa.——The Association of Seaboard Air-Line Surgeons held its eighth annual meeting in Raleigh, N. C., October 19-21, under the presidency of Dr. Joseph M. Burke, Petersburg, Va., and elected the following officers: President, Dr. James R. Rogers, Raleigh, N. C.; vice-presidents, Drs. Jarvis G. Dean, Dawson, Ga., Hillary M. Wilder, Charlotte, N. C., and Hampden A. Burke, Petersburg, Va.; secretary-treasurer, Dr. Jarrett W. Palmer, Ailey, Ga. (re-elected), and member of executive committee, Dr. Emmett H. Terrell, Richmond, Va. The next annual session will be held in Birmingham, Ala.

CANADA

Hospital Notes.—At the eighteenth annual meeting of the Montreal Foundling and Baby Hospital, the fact was brought out that the death rate in the institution had been materially lessened during the past year, chiefly by a purer milk supply. It had been necessary to refuse 300 children admittance during the year and this emphasized the urgency for a larger institution.——Ingersoll, Ont., has recently opened a new hospital. ——The Toronto Western Hospital is erecting a new wing.—— In 1908 there were 6,268 patients in the hospitals for the insane in the province of Ontario, an increase of 178 over the previous year.

Tuberculosis Sanatoriums.—The province of Quebec now has completed a provincial sanatorium for the treatment of cases of tuberculosis, situated on Lake Edward, about two hundred miles north of Quebec City on the Quebec and Lake St. John division of the Canadian Northern Railway. It will accommodate thirty patients and has been built at a cost of $35,000. Dr. W. E. Ainley, Lachine, late of the Montreal General Hospital staff, is in charge as medical superintendent. A considerable sum has been subscribed for maintenance by the citizens of the province. No free patients are admitted and the charge of each patient is fixed at seven dollars a week.——During the week ended October 16 the Royal Edward Institute for the Treatment of Tuberculosis was opened in Montreal.

Canadian Medical Association.—The forty-third annual meeting of the Canadian Medical Association will be held in Toronto June 1-4, 1910, under the presidency of Dr. Adam H. Wright, Toronto. Drs. D. J. Gibb Wishart, R. W. Bruce Smith, James F. W. Ross, Allen Baines, Charles J. Hastings, and George Elliott (general secretary), comprise the committee of arrangements. The meetings will be held in the Convocation Hall of the University of Toronto. The executive council met in Toronto October 11 and appointed the following special committee on dominion registration: British Columbia, Drs. Simon J. Tunstall, Vancouver, and James H. King, Cranbrook; Alberta, Drs. J. Kennedy and James D. Lafferty, Calgary; Saskatchewan, Drs. Maurice McD. Seymour, Regina, and William A. Thomson, Regina; Manitoba, Drs. Robert J. Blanchard, Winnipeg, and Robert S. Thornton, Deloraine; Ontario, Drs. Robert H. W. Powell, Ottawa, and Frederic N. G. Starr, Toronto; Quebec, Drs. Emmanuel P. Lachappelle, Montreal, and Herbert S. Birkett, Montreal; New Brunswick, Drs. Murray Maclaren, St. John, and John W. Daniel, St. John; Nova Scotia, Drs. John Stewart, Halifax, and Geo. M. Campbell, Halifax, and Prince Edward Island, Drs. Stephen R. Jenkins, Charlottetown, and James Warburton, Charlottetown. It is expected that the new journal of the association will appear about Jan. 1, 1910.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Oct. 16, 1909.

Women's Success in Medicine

The winter session of the London School of Medicine for Women has commenced, this being the first time the school has met since the opening to women of the Colleges of Physicians and Surgeons of London. The president, Dr. Garrett Anderson, made the gratifying announcement that of the seven students sent by the school for the first medical examination of the London University (the degree of which stands highest in this country) every one had passed; in the second medical there were 12 passes; 28 had taken the M.B. and B.S. of London; 2 the M.B. of Durham, and 2 the conjoint colleges of Scotland, and 7 former students the M.D. of London. Such a list of successes would be an honor to any medical school.

Heart Overstrain in Athletes

At the opening of the winter session of the Postgraduate College of the West London Hospital, Prof. Theodor Schott of Nauheim delivered a most important address on "Overstrain of the Heart by Athletics." After alluding to the pioneer work of Peacock and to the researches of Myers, Allbutt, Da Costa, Sitz and Münzinger, he said that he reported to a medical congress in Vienna in 1890 experiments he had made to determine whether bodily overstrain could produce alterations in a healthy heart. He selected healthy young subjects at ages ranging from 14 to 32. He had them wrestle and perform other exercises until a high degree of dyspnea was produced, and he found that the heart became temporarily dilated. His observations were confirmed by the *x*-rays. Chronic overstrain he regarded as due to repeated excessive muscular efforts. His views were confirmed by the enlargement of the heart found in bicyclists and ski-runners. Only last year he performed further experiments which showed that a healthy heart hypertrophied from excess of work, such

as occurred under excessive indulgence in athletics. Strong emotions, fright or shock also produced serious effects on the heart. Dilatation followed mountain climbing from accumulation of blood in the heart cavities. Experiments on heavily accoutered soldiers who had climbed high mountains with the result that dyspnea was produced, showed that the cardiac diameter was increased 2 or 3 centimeters.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Oct. 8, 1909.

Congress of Surgery

The opening session of the twenty-second French Surgical Congress took place October 4 under the presidency of Dr. Richelot, member of the Academy of Medicine and professor *agrégé* at the Paris medical school. It brought together in addition many Parisian and provincial surgeons, a great number of foreign surgeons, among whom were Professors Czerny of Heidelberg, Kocher of Berne, Gibson of New York, and Jonnesco of Bucharest. Dr. Richelot delivered a very instructive oration on "Simplicity in Surgery." After having reviewed the progress made by surgery since the foundation of the French Surgical Association, twenty-five years ago, the orator showed that there was still no ground for vainglorious-ness. Velpeau once said, "If it were not for erysipelas and purulent infections, surgeons would be gods." "Erysipelas and purulent infection have disappeared," said Dr. Richelot, "and I am strongly inclined to believe that we are still men. Surgery, indeed, is always advancing, but there are still many obstacles in its path, especially those due to lack of simplicity—in the first place, lack of simplicity in the operative equipment." He deprecated the multiplication of varied instruments apparently responding to all the needs and facilitating each movement of the operator, down to the smallest details. He has seen surgeons bring with them enormous chests with multiple compartments, and spread astonishing arsenals around them on the tables, and the operation was done with a single little bistoury and small forceps. He has seen gynecologists brandish formidable tools as if they had had nightmares in which the pelvis looked the size of an underground tunnel. Instruments cannot give brains to surgeons. The one who succeeds the best is the one who makes the best use of his fingers and his good sense.

Richelot also criticized the type of surgeon who, away from his elaborately equipped operating-room, consents to take the bistoury in hand only after having had all the furniture and draperies removed, the pictures turned, that is, only after having raised a great deal of dust. Lister, however, affirmed and proved that asepsis was realized between the field of operation, the instruments, and the surgeon's fingers. He added that lately there have been invented various forms of more or less ingenious apparatus for regulating mathematically and invariably the dose of chloroform that the patient is to breathe in a given period and to furnish a definite mixture of air and of chloroform. No doubt such apparatus have their advantages, but the dose of chloroform should be graduated by clinical observation, each patient having his own receptivity, which only skilled and attentive observation can estimate. In regard to the technic of operations, he declared that many surgeons are too much inclined to say "Such is my practice;" "That is the way that I do." This extreme desire to have an individual surgical technic leads to useless complications, and impels leading surgeons sometimes to perpetuate imperfect procedures. This is one of the circumstances which render it so difficult to simplify surgery.

Death of Professor Heurtaux

Dr. Alfred Heurtaux, former professor of clinical surgery in the Nantes medical school, has just died, aged 78. He was one of the most active collaborators on Jaccoud's *Dictionnaire de médecine et de chirurgie pratiques*, for which he wrote the articles on cancer, inflammation, fibromas, cysts, etc. He had been a national associate of the Academy of Medicine since 1901.

Monument to Professor Tillaux

Yesterday the dedication of the monument to the memory of Prof. P. Tillaux took place in the amphitheater of anatomy of the hospitals of Paris. This monument was the last work of the late sculptor Chaplain. It is in marble and represents Tillaux standing, his right hand on a half dissected cadaver, giving his lesson in anatomy. The monument stands in the garden of the amphitheater where Tillaux was director of anatomy before being appointed professor in the medical school.

Pharmacology

CELLASIN

Report of the Council on Pharmacy and Chemistry

Cellasin, a product of Mead Johnson & Co., was the subject of a report by the Council on Pharmacy and Chemistry in THE JOURNAL, Sept. 12, 1908. In this report, the Council voted that cellasin be refused recognition on account of the exaggerated chemical and therapeutic claims made for it. The manufacturers having taken issue with these findings, the Council decided to reinvestigate the product, and the matter was referred both to the original investigator (Referee A) who conducted a new series of experiments, and to a second referee (B), not a member of the Council, who investigated the product independently. The reports containing the findings of both these men were submitted to a third referee (C). The report of Referee C was submitted to the Council, together with the reports of Referees A and B and also letters from Mr. John E. Teeple, chemist for Mead Johnson & Co., and Professor Orndorff. The Council voted that all the matter submitted by Referee C should be published in pamphlet form and Referee C's individual report should in addition be published in THE JOURNAL. After this had been decided the manufacturers requested that publication be withheld until they had submitted new evidence, a request which the Council voted to grant for a specified time. At the end of this time Referee C submitted to the Council the following recommendation which was adopted and publication of the Cellasin report authorized. W. A. PUCKNER, Secretary.

RECOMMENDATION OF REFEREE C

To the Council: The accompanying letter, dated Aug. 13, 1909, from Mr. John E. Teeple, in behalf of Mead Johnson & Co., and addressed to the Secretary of the Council, has been transmitted to me:

> Mead Johnson & Co. have handed me a copy of your letter to them of July 30, stating that further consideration of Cellasin has been postponed until August 15, and have asked me to write you regarding the matter.
>
> I have worked on this subject in conjunction with bacteriologists a considerable portion of the time since I saw you in Chicago in April. I have been attempting to obtain a sterile solution by some means which would not at the same time interfere with the action of any enzyme which might be present.
>
> From my conversation with you and others in Chicago I believed that there was not at present any question regarding the presence or absence of action on sugar, but that the question was now solely whether the action was bacterial or enzyme.
>
> At the outset I assumed it would be comparatively easy to obtain a sterile solution by some means which would not interfere with the enzyme. I have not yet, however, succeeded in getting a satisfactory result. There are certain bacteria present which are evidently spore bearers and which resist any means of sterilizing so far tried, excepting means which would actually destroy enzyme.
>
> More recently, I have been trying the possibility of sterilizing by repeated filtration through Birkhardt filters, but a very large number of filtrations, through a great many filters, with intervals to allow development of spore, has not yet produced a solution which is sterile.
>
> I am at present endeavoring to isolate the bacteria and develop pure cultures and determine whether any of them have the same action on sugar and same resisting powers that the Cellasin itself seems to have.
>
> It seems certain that we have here either an enzyme or a variety of lactic-acid-producing bacteria widely different from commonly known varieties, and much more active and resistant to chemicals than they are.
>
> I expect to pursue this investigation until I can determine exactly what we have. If under these circumstances your committee cares to leave the matter open a little longer, I shall be glad to report to you at frequent intervals just what results are being obtained. My only desire is to determine the exact truth in the matter.
>
> Awaiting your advices, I remain,

Since Mead Johnson & Co. have on the market a product for which they made certain claims, which they are unable to substantiate in their letter of August 13, and as they themselves arrive at the conclusion that "it seems certain that we have either an enzyme or a variety of lactic-acid-producing bacteria widely different from commonly known varieties, and much more active and resistant to chemicals than they are," I would recommend the publication of the report on cellasin.

REPORT OF REFEREE C

Cellasin was submitted to the Council by Mead Johnson & Co., with the claim that it contained starch-converting and fat-splitting enzymes and an enzyme capable of converting sugar into lactic acid, together with small amounts of acetic and other acids. The report of the committee on chemistry showed that, so far as the action on sugar was concerned, these claims were not substantiated by the examinations made by its referee.

In view of the emphatic assertions of the manufacturer that the claims they made for the product were correct, the committee on chemistry again took up the matter, and after further investigation submitted a second report in which it is stated: "We have given an unusual amount of time to the investigation of cellasin and every opportunity has been afforded the firm to substantiate its claims. These claims could not be verified in any samples submitted, and the committee now and finally recommends the adoption and publication of the report."[1]

In the report on cellasin, as published in THE JOURNAL, it was stated that Mead Johnson & Co. claimed that "the action of cellasin on fats, carbohydrates in acid solution is most powerful." This evidently is an error, the word "acid" having been used when "alkaline" was meant. The firm having made no claim as to the activity of the product in *acid* media, this statement in THE JOURNAL should be corrected.

The consulting chemist of the firm, J. E. Teeple, presented arguments (Oct. 13, 1908) to show that the product contained or might contain an enzyme, and transmitted a report from Prof. W. R. Orndorff of Cornell University, who had examined cellasin with reference to its power to produce acid from sugar. Orndorff's experiments showed that the preparation would convert cane sugar into lactic acid when the media were apparently sterile and even in the presence of antiseptics, but apparently he made no examination of the substance itself or of the fermenting solutions for bacteria.[2]

On the receipt of this letter the matter was referred in accordance with the custom of the Council to the original referee (A) for reinvestigation. Referee A went carefully over the ground and reported in substance, that while cellasin has the power of converting sugar into lactic acid,[3] this action is due in the main to bacteria, of which cellasin contains about 500,000 per gram, and that these bacteria increase, *pari passu*, with the formation of acid. He found that when micro-organisms were removed by proper filtration the activity of the product becomes correspondingly decreased.[4]

In addition to the investigation by the referee, the product was referred to a second referee (B). His report confirmed the findings of the first referee.[5]

In accordance with the regular procedure of the Council, the reports of Referees A and B (the latter not a member of the Council) on cellasin, together with a letter, bearing date of Oct. 13, 1908, and signed by J. E. Teeple (consulting chemist, chemical engineer) in regard to the properties and claims made for the product, and accompanying this letter a report by Prof. W. R. Orndorff of Cornell University, were submitted to the third referee (C) for an additional opinion.

The report of Professor Orndorff goes to show that cellasin does possess considerable power of splitting up cane sugar into acid products, but singularly enough the report is lacking in a bacteriologic control of the results obtained. That he attempted to exclude *extraneous* bacteria is indicated by the statement: "Except in cases where antiseptics were used, all apparatus and chemicals were sterilized before cellasin was added." The possibility that *cellasin itself* might contain the responsible bacteria was seemingly excluded by a number of tests in which antiseptics were employed. The report tacitly assumes that the germicidal and antiseptic substance used either killed or held in check such bacteria as might be present, and, while it does not directly assert the presence of a "true enzyme," still it leads to such an inference. Thus, Mr. Teeple, referring in his letter of Oct. 13, 1908, to the tests made by Professor Orndorff and himself, states "that all of the experiments go to show that we have here a true enzyme whose action is roughly proportional to the amount of enzyme present." In these few words a tangible claim is made which must stand or fall with such experimental evidence as has been presented. The report of Professor Orndorff therefore requires particular attention.

In 8 out of the 12 experiments tabulated in the report of Professor Orndorff, phenol (in amounts of 0.03, 0.06 and 0.1 per cent.) was added to the cane-sugar solution clearly for the purpose of inhibiting the growth of bacteria. And yet, no control was made to ascertain whether the bacteria were actually inhibited, although it was noted that an increase in the amount of phenol retarded the reaction. The statement, made by way of comment on the results obtained, that "This retardation of *enzyme reactions* [Italics not in original] in the presence of antiseptics has been frequently observed," shows clearly that the possibility of *bacterial reactions* was entirely lost sight of.

As a matter of fact, Referee C, on repeating the phenol experiments under practically the same conditions as those which obtained in the experiments of Professor Orndorff, obtained an enormous development of bacteria, and as might be expected, a corresponding conversion of cane-sugar into acid products. The details of one experiment will be sufficient.

TEST WITH 0.1 PER CENT. PHENOL

To 392 c.c. of a sterile 2 per cent. solution of rock candy, 8 c.c. of a 5 per cent. solution of phenol was added. To this solution 2 c.c. of sterile normal sodium bicarbonate and 0.8 gm. of cellasin were added, and the whole mixture then incubated. In this, as in all other tests, made by Referee C, the solutions and containers were absolutely sterile, and special care was taken to avoid external contamination. Hence, the bacteria, if any developed, came from but one source—the cellasin.

Agar plates were poured at the times stated, and the kind and number of bacteria were noted. The clouding of the liquid soon indicated a rapid multiplication, and since the titration of a portion of the liquid showed considerable acid production, sterile normal sodium bicarbonate was added to the liquid from time to time, in order to reduce the acidity. The total acidity at the end of 120 hours calculated as lactic acid, corresponded to 5.28 gm. of lactic acid. This result, as well as the bacterial count when compared with the control test given later on, where no antiseptic was used, shows an almost total absence of a supposed antiseptic action. The following table will serve to show the rapid growth of bacteria in this test:

MIXTURE PLATED	NO. BACTERIA PER C.C.
At once.	3,800
8 hours.	8,400
24 hours.	450,000
48 hours.	58,000,000
72 hours.	70,000,000
96 hours.	90,000,000

The obvious conclusion from this experiment is that 0.1 per cent phenol does not inhibit the action of the bacteria contained in the cellasin. It naturally follows that the 0.03 per cent. and 0.06 per cent. phenol would have even less inhibitory action, if any at all.

A similar experiment made with 0.5 per cent. phenol did show a complete inhibition of the growth of bacteria, and, paralleling this, a total absence of conversion of sugar into acid products. Agar plates made daily for a period of nine days showed about 100 colonies on each of the nine days. These were obviously derived from spores present in the cellasin. The spores, though resistant to 0.5 per cent. phenol,

1. THE JOURNAL A. M. A., Sept. 12, 1908, p. 931.
2. Mr. Teeple's letter and Prof. Orndorff's report appear on pages 8 and 10 respectively of the pamphlet; this pamphlet may be had on request.
3. The action of cellasin on a sugar solution is found to be slow at first. The examinations on which the first reports of the referee were based were made after an incubation for not more than 24 hours. The results were negative as to quantitative results. In the subsequent experiments a longer period of incubation gave considerable formation of acid. It is admitted by the manufacturers that the action of cellasin is too slow to be of use as an intestinal enzyme, but is claimed that it is an intracellular enzyme, similar to muscle enzymes, and acts after absorption into the blood. (As appears in Mr. Teeples' letter, page 8, and also report of Referee A, page 13 of the pamphlet.)
4. Report of Referee A, page 13 of pamphlet.
5. Report of Referee B, page 15 of pamphlet.

were unable to germinate in such a solution, whereas a 0.1 per cent. solution offered no such hindrance. The failure to effect a cleavage of the sugar can mean only one thing—the absence of a "true enzyme."

TEST WITH 0.5 PER CENT. SODIUM SALICYLATE

Two experiments of this kind are given by Professor Orndorff, who obtained about the same amount of conversion as with 0.1 per cent. phenol. Any one familiar with the antiseptic action of sodium salicylate would realize, as in the case of phenol, that very little, if any, inhibition of growth might be expected. Nevertheless, one test was made by Referee C under as nearly identical conditions as possible, and the result showed an even greater multiplication of bacteria than in the test with 0.1 per cent. phenol. The acid production corresponded to 3.78 per cent. lactic acid. It is therefore clear that cellasin contains bacteria which can multiply without apparent hindrance in the presence of 0.5 per. cent. sodium salicylate, and hence such test can not be taken to indicate the presence of an enzyme other than that connected with the functional activity of the bacteria.

TEST WITH CHLOROFORM

Two tests were also made by Professor Orndorff using chloroform as an antiseptic, but here, as in other experiments, no controls were made. It is commonly assumed that chloroform water is an efficient antiseptic, and it is less generally known that there are bacteria which can thrive under such conditions. Cellasin, it will be seen, affords an interesting instance of this kind.

A number of tests made by Referee C, with varying amounts of chloroform and under varying conditions of agitation, showed an invariable and unhindered multiplication of the bacteria introduced into the sugar solution with the cellasin. One test will be sufficient to substantiate this point.

To 400 c.c. of a 2 per cent. solution of rock candy there was added 2 c.c. of sterile normal sodium carbonate, 40 c.c. of chloroform and 0.8 gm. of cellasin. Sterile conditions obtained as before except for the cellasin. The glass-stoppered bottle containing the liquid was placed on a mechanical shaker in an incubator and constantly agitated throughout the experiment. Sterile normal sodium bicarbonate was added from day to day to maintain an approximately neutral reaction. On titration at the close of the experiment the acidity produced corresponded to 2.88 gm. of lactic acid. The growth of bacteria can be seen from the following table:

MIXTURE PLATED	NO. BACTERIA PER C.C.
At once.	3,000
10 hours.	850,000
24 hours.	2,000,000
48 hours.	87,000,000
72 hours.	150,000,000
96 hours.	200,000,000
120 hours.	300,000,000

The constant presence of an excess of chloroform, therefore, does not materially interfere with the multiplication of the bacteria, and hence the conversion of sugar obtained under such conditions can not be ascribed to an enzyme contained with the cellasin.

TEST WITH HYDROCHLORIC ACID

The patent specifications describe an enzyme which is *indestructible* in a solution of 25 per cent. hydrochloric acid and it further specifies that the ferment has the empirical formula $C_{72}H_{112}N_{18}O_{22}S$. There are no tests, however, with 25 per cent. acid,[6] and only one is given by Professor Orndorff with a concentration one-tenth that specified, and from his results he deduces the conclusion that "cellasin resists the action of 2.5 per cent. hydrochloric acid." This is quite true, but it does not prove that cellasin is an enzyme or even a mixture containing an enzyme. The presence of resisting spores offers an adequate explanation for the subsequent conversion of sugar.

Several tests were made by Referee C by treating 0.8 gm. of cellasin with 10 c.c. of 2.5 per cent. hydrochloric acid for one hour at 24 C., then neutralizing and adding the mixture to 400 c.c. of a 2 per cent. rock-candy solution. In one instance no growth was obtained and no cleavage of sugar resulted. In three other tests multiplication of bacteria occurred, though very slowly in the beginning, and at the same time sugar was split up into acid products. It is clear, therefore, that 2.5 per cent. hydrochloric acid may destroy all of the bacterial spores present in cellasin, but more often, either because of a large number or through mechanical protection, a few survive and slowly develop when placed under suitable conditions, resulting eventually in rapid growth and the conversion of sugar. Professor Orndorff in his experiment obtained complete conversion of the sugar contents, and although he noted "the only effect observed being a retardation of the reaction at the beginning," yet he failed, apparently, to note the significance of that delay.

In another experiment made by Professor Orndorff, the cellasin was digested with 0.2 per cent. hydrochloric acid in an incubator for five days, then neutralized and added to the sugar solution after which acid production was noted though in lessened amount. This test when repeated and controlled bacteriologically by Referee C showed an almost complete destruction of the bacteria present in cellasin. During the first 24 hours following neutralization there was no evidence of bacterial growth and no cleavage of sugar; after two days, however, the few surviving organisms multiplied sufficiently so as to split up the sugar present to a slight extent. At the end of five days the acidity corresponded to 0.9 gm. lactic acid, while the bacterial content was only four million bacteria per c.c., or about the number to be expected in a control at the end of about from 24 to 30 hours. The significant feature, here as in the other case, is the *absence of all signs of acid production prior to the establishment of a rapid multiplication of the bacteria.*

CONTROLS WITH UNALTERED CELLASIN

Since in the foregoing experiments with antiseptics it is apparent that the action of cellasin goes hand in hand with the growth and multiplication of bacteria, it is hardly necessary to show that cellasin when used direct, i. e., without an antiseptic, will give an equally rich bacterial development. One control of this kind, however, may be given. The test was carried out as in the case of the other experiments; 0.8 gm. of cellasin was added to 400 c.c. of a 2 per cent. solution of rock candy, to which was added 2 c.c. of normal sodium bicarbonate, everything being sterile except the cellasin. The liquid promptly became cloudy and the plate counts showed a rapid multiplication. The amount of acid produced corresponded to 5.4 gm. lactic acid. The increase in bacterial contents will be seen from the appended table:

MIXTURE PLATED	NO. BACTERIA PER C.C.
At once.	2,800
9 hours.	23,500
24 hours.	680,000
48 hours.	12,000,000
72 hours.	62,000,000
96 hours.	60,000,000

THE BACTERIAL CONTENT OF CELLASIN

The number of bacteria contained in cellasin is significant. The standard dilution of 0.8 gm. cellasin in 400 c.c. of sugar solution gave counts which averaged about 3,000 bacteria per c.c., or a total of 1,500,000 per gm. of cellasin. At no time did the samples contain less than 150,000 bacteria per gm. of product.

Of still further significance is the fact that one bacterial species predominated in all three samples of cellasin examined. Moreover, this form was present largely in the spore condition, a fact established by heating experiments, as well as by the behavior of the preparation in the presence of phenol and hydrochloric acid.

It should be stated further, that in plating out the various solutions of cellasin, referred to in the preceding tests, invariably one and the same organism was found. Isolated in

6. In the earlier consideration of cellasin the Council having questioned the claim that cellasin was indestructible in 25 per cent. hydrochloric acid, Mead Johnson and Co. submitted, instead, the statement that cellasin is not destroyed by 2.5 per cent hydrochloric acid.

pure cultures it was found to be a rapid spore producer. Control experiments made with the pure spores gave essentially the same result as with cellasin. The organism in pure culture splits up cane sugar into acid products, and there can be no question as to the part it plays in the so-called action of cellasin.

That the action of cellasin depends on the presence and growth of this organism is evident also from filtration experiments. When a solution of cellasin is filtered through a Berkefeld candle into a sterile sugar solution no change whatever results. The solution, after incubation for weeks, remains clear, no acid is produced, and no bacteria can be detected. Were a "true enzyme" present, such would hardly be the case.

The evidence on hand goes to show that cellasin is a mixture of an acid-producing organism and a protein substance, presumably casein. Referee C can, therefore, only confirm the separate findings of Referees A and B, and recommend the rejection of the preparation.

MAYATONE

A French Beauty's Japanese Prescription for American Use

The following advertisement, arranged as reading matter, has appeared recently in the daily papers:

To Have a Clear, Velvety Complexion

By MADAME D'MILLE

Madame D'Millé, one of Paris' most famous beauties just passing through Chicago, gives us a few valuable ideas on skin treatment, as follows:

"Yes, I have just come from beautiful Japan, and I must say the Japanese women have many toilet formulas and ideas which American women should know.

"What do they use to make their skin so soft and velvety?

"Any American woman can use the same treatment if she desires. Dissolve a small original package of mayatone in about eight ounces of witchhazel. Massage the face, arms, and neck with this solution once or twice a day and you will shortly find you have a lovely, soft complexion, and then the best of it all is that this solution prevents the growth of hair and is absolutely harmless to the most delicate skin. Make the solution yourself.

"Why, yes—of course I use it. Just see how beautifully soft my arms and face are, and not a hair.

"No—you will never use powder again, and those stray hairs will soon be missing from your face."

Mayatone—which is, of course, the "joker" in this "prescription"—is put on the market by the May-a-tone Company of Detroit. It comes in small cardboard packages containing about 2½ ounces of a granular powder, pink in color, and smelling like cheap hair-oil. The price of the package is seventy-five cents. The preparation was examined in the Association's laboratory with the following results:

LABORATORY REPORT

Examination of Mayatone, a product prepared by the May-a-tone Company, Detroit, indicates that the preparation is composed essentially of magnesium sulphate and sodium borate in the following proportions:

Magnesium sulphate (Epsom salts)	90 per cent.
Sodium borate (borax)	10 per cent.

This analysis confirms the findings of the Kansas State Board of Health, which in its *Bulletin* for June, 1909, reports that Mayatone was "found to be largely magnesium sulphate, perfumed and tinted pink."

The viciousness of such nostrums as Mayatone does not lie in their ingredients but in the dishonest method by which they are exploited. For it is dishonesty, trivial, perhaps, but none the less inherent dishonesty, to attempt by implication or otherwise to make the public believe that a colored and scented mixture of epsom salts and borax is responsible for the "soft and velvety" skin of the Japanese women, and further, that such a "formula" is given to the world through the medium of a Parisian beauty. But the greater dishonesty lies in attempting to make the public believe that the "prescription" or "formula" is given as editorial information, and further that it is composed of non-proprietary articles to be had in any drug store. This form of deception is becoming increasingly common, a fact that reflects little credit on the daily press, whose cooperation makes the humbug possible. It is but fair to say, however, that newspapers of the better type will not lend their pages to this bald attempt to deceive their readers.

Committee on Credentials and Arrangements for Pharmacopeial Convention

President Horatio C. Wood has appointed the following committee on credentials and to make arangements for the United States Pharmacopeial Convention which will be held in Washington, D. C., beginning Tuesday, May 10, 1910. Prof. O. T. Osborne (chairman), Yale University, New Haven, Conn.; Dr. H. C. Wood, Jr., University of Pennsylvania Medical Department, Philadelphia; Mr. L. S. Hilton, Washington, D. C.; Mr. W. L. Cliffe, Philadelphia.

The following officers of the convention are ex-officio members of the committee: President Dr. H. C. Wood, Jr., University of Pennsylvania Medical Department, Philadelphia; Secretary Dr. H. M. Whelpley, Washington University Medical Department, St. Louis; and Assistant Secretary Dr. Murray Galt Motter, Hygienic Laboratory, Washington, D. C.

Correspondence

A Visit to the Pellagrosarium at Rovereto

To the Editor:—A news item in THE JOURNAL and Professor Mark's book on the "Skin Changes in Pellagra," induced me to include Rovereto in a recent tour of Europe. The visit was most profitable, and, particularly in view of the interest in pellagra in this country, I have thought it worth while to publish a short account of it.

Rovereto is a city of 11,000 inhabitants, on the *Sudbahn* (southern road) between Trent and Verona. It may easily be reached from Italy or Germany, as through trains from Berlin and Munich to Verona stop there. It is near the romantic Lake Garda and not far from the southeastern high Alps. It can also be reached in what I found a most interesting way, from the region of the Stelvio Pass, by coach and automobile from Madonna di Campiglio, going through the wild and picturesque gorges of the Sarca and rounding the snow-capped peaks of the Brenta. The city lies in the wide Val Lagarina, through which the Adige runs, the torrential Leno entering the Adige a short distance from the city. The valley is surrounded by picturesque mountains covered with vineyards, among which numerous small and characteristic villages are scattered. The city itself possesses many objects of interest, including a well-preserved medieval castle, an interesting town hall, and numerous churches and monasteries. The city once belonged to Venice, and the names of streets and squares still indicate the relationship. It is also said that the fine appearance of the inhabitants—and especially the women—and a certain genial dignity of manner, are survivals of the Venetian period. Rovereto in situation reminds one of Meran. Like the latter, Rovereto is frequented as a winter resort, and also in the fall as a "grape-cure." Snow falls only a few days every year, and a freezing temperature is rarely reached.

Pellagra has long been known in the region of Rovereto; in fact, Dr. de Probizer has recently called attention to the excellent work done in 1822 by Dr. Peter Stofella, a Roveretan, and father of the well-known E. Stofella, who will be remem-

bered by many American students in Vienna. Ever since the Austrian government took up the campaign against pellagra, Southern Tyrol has been included in the work. In 1895 a pellagrosarium was arranged in an old building, which in 1903 was replaced by a new one built especially for the purpose. On presenting myself I was most kindly received by Dr. Bresadola, city physician, and Dr. de Probizer, director of the pellagrosarium; and I was given every facility for seeing patients and other matters of interest.

The hospital is a large two-story building, on a hill overlooking the city, though only a few minutes' walk from the center of the town. It is well-planned and all the details are modern and complete. The large plot of ground around the hospital is being graded and covered with landscape gardening and plantations of vegetables and fruits.

As it was the off season, there were only twenty-five patients in the hospital. The yearly attendance is about 150. On account of the season, also, there were no very severe cases, but the patients were clinically all the more interesting for that reason. Only two or three had any skin changes at all and these were very slight, though in two the process had been more severe in the spring; but I was told that the skin changes were by no means always present and that in fact, since Dr. Merk did his work, there had been no such interesting material as he described. Many of the patients had gastro-intestinal disturbances of rather a mild type; some had evidences of mild stomatitis; several had a peculiar tongue which the doctors told me was quite characteristic, though of course not uniform. In these cases the tongue was not enlarged, the epithelium slightly thin but not stripped, the surface of the tongue wrinkled and the epithelium having a rather unusual, pale violet color. The Italian doctors call this a "raspberry tongue," which of course is not to be confused with what is called a "raspberry tongue" in America. Some of the patients were constipated. Most of them had distinct nervous symptoms, although in many cases these symptoms were so slight that I think the anomaly would be impossible to recognize by one incapable of questioning the patients in their own dialect. Many had the appearance of mild neurasthenics, such as are commonly seen, especially in the middle west, among farmers, and often associated with gastric or sexual symptoms. When I mentioned this to Dr. de Probizer, he said it was quite true, but that his patients did not present the other features of neurasthenia, and especially did not have the characteristic history. Most of these patients were improving.

The treatment is chiefly general, with diet, baths, fresh air and medication only for particular symptoms, as iron or arsenic for anemia. When I mentioned the severe cases, such as have been so noticeable of recent years in the south, and the apparent contradictions of some members of the family having severe pellagra and others exposed to the same causes escaping, the doctors told me that that was exactly what was to be expected when pellagra occurred in a new vicinity. The predisposition, they say, varies extremely, so that one member of the family might acquire the disease and the others, though living in the same way, escape. As the disease becomes more common, and especially when it is present long enough for a predisposition to be acquired by heredity, members of the family are more generally affected, though the disease is likely not to be so severe.

The Rovereto doctors are thoroughly convinced that the cause of pellagra lies in maize. They do not venture to say what the material is, and are not at present making investigations in that direction. When I mentioned typical cases, such as I saw with Dr. Bass, in which the patients made apparently a perfectly credible denial of maize-eating, they said there was no reason why that should not be so, but in their own observation such cases did not occur. Their patients all eat corn, but not, as among the maize-eaters in the south, in the form of corn-bread. They told me that corn-bread should not be capable of producing pellagra. As they find it, it occurs in people who eat "polenta," which corresponds to our corn-meal mush. Properly prepared, this should be cooked for a half-hour, but as a matter of fact it is often imperfectly cooked. The corn concerned in these cases is not raised in the district. Very little maize is raised in southern Tyrol, and the maize in the neighboring Piedmont does not get into the markets. The maize comes chiefly from Roumania and La Plata, and from both of these places often comes obviously moldy. Besides having fed on the diseased maize, the pellagra sufferers are often underfed; sometimes they eat only polenta, and not enough of that. They have also often gone without salt in their food. Other causes considered of importance are alcoholism and syphilis; in fact, in many of the cases, the symptoms of alcoholism were difficult to distinguish from those of pellagrous nervous symptoms.

The treatment of patients in the pellagrosarium is only a small part of the movement against pellagra. The institution serves as a center of statistical, prophylactic and therapeutic effort. Lectures are given, illustrations of the disease are shown, the raising and preparation of maize for food are described, the characteristics of healthy and diseased maize shown by a large collection of specimens. There is maize inspection all over the district. The patients in the institution are taught the advantage of mixed diet, and part of the hospital grounds is used to teach the methods of raising various fruits and other food materials, in order to encourage peasants to introduce these on their own farms. They are even permitted to work on the plantations, provided their conditions permit. The free distribution of salt to those who need it is one of the numerous details carried out. Every doctor in the district assists in keeping up a pellagra census. Every patient discovered is investigated and his data written out on a history sheet printed for the purpose. The finding of one patient is followed by an investigation of all the relatives, and all the findings are written out and the histories sent to the pellagrosarium, where they are filed according to district. Every year a report is made on each case, so that the outcome is constantly known. Although the Rovereto pellagrosarium is not arranged for extensive scientific investigations, a great deal of most excellent work is done there every year. Unfortunately for most of us the publications are almost inaccessible, inasmuch as they are printed in Italian, the language of the district. The yearly "Reports" of the work of the pellagrosarium are very well done. Other clinical and general articles are published as official documents, and still others are published in the *Atti d. i. r. Accad. di Scienze, Lett. ed Arti degli Agiati in Rovereto*, a most creditable publication, reflecting the general high standard of scientific interest in the community.

GEORGE DOCK, New Orleans.

The Sections and the U. S. Pharmacopeia

To the Editor:—In THE JOURNAL, September 4, pp. 791, 793, 796,, there were published reports of three committees on the revision of the U. S. Pharmacopeia, namely those of the committees of the Sections on Practice of Medicine, on Ophthalmology and on Stomatology.

There are certain features in these reports well worthy of careful consideration and as they appeared at a time when many physicians had not returned from their vacation I am taking the liberty of calling attention to a few points. These committees were appointed to the sections at the request of the Committee on the U. S. Pharmacopeia of the American Medical Association. The latter committee was appointed by the Board of Trustees at the direction of the House of Delegates in compliance with a recommendation of the Section on Pharmacology and Therapeutics. This committee felt that it could best fulfil the purpose for which it was appointed by ascertaining the attitude of physicians toward the admission to and omission of articles from the Pharmacopeia, and it believed that this could best be accomplished by appealing to the various sections of the Association.

The reports of the committees should be read in their entirety, but it may be worth while to call attention in this place to a few points:

1. Committee of the Section on Practice of Medicine.—It should be noted that this committee believes that the present attitude of the U. S. Pharmacopeia toward permanently controlled substances (i. e., proprietaries) should be maintained, namely, that they should not be admitted.

Admissions: The following articles are recommended for admission:

Calcium lactate
Phenolphthalein
Arsenic preparations suitable for hypodermic injection; perhaps sodium cacodylate and sodium arsanilate
Theobromin and theobromin-sodio-salicylate
Bile salts
Diacetyl-morphin

Omissions: Fifty-one drugs and their preparations are recommended to be omitted (THE JOURNAL, Sept. 4, p. 792).

2. Committee of the Section on Ophthalmology.—This committee states that it considered the admissions and omissions from the purely ophthalmic standpoint. The committee selected fourteen drugs which they thought might profitably be considered for inclusion in the Pharmacopeia. These were submitted to the members of the Section with the request that each indicate the six which he considered the most important. The six receiving the largest number of votes were:

Adrenalin hydrochlorid	Fluorescein
Dionin	Protargol
Argyrol	Holocain hydrochlorid

A point of special interest in this report is that nearly all of the drugs on which a favorable report is made are proprietary. Whatever may be the attitude of the next Revision Committee toward proprietary medicines, such a report as this shows the serious consideration which they must receive.

Omissions:

Argenti nitras mitigatus	Salicylate of physostigmin
Oleate of cocain	Extractum scopolæ
Oleate of atropin	Extractum stramonii

3. Committee of the Section on Stomatology.—This Section makes the following recommendations:

Admissions:

Liquid nitrous oxid	Trioxymethylen
Liquid oxygen	Veroform (or a similar solution of formaldehyd)
Novocain	Cotarnin hydrochlorid
Suprarenal alkaloid	Cotarnin phthalate
Protein silver compound	Acetylsalicylic acid
Magnesium dioxid	Validol
Sodium perborate	
Perhydrol	

The list of drugs recommended for admission by this committee is larger than that of the other committees, but any one reading this splendid scientific report must feel that it is written by men who know whereof they speak and that these drugs (or their equivalents) represent real needs. A very significant feature of this report is a brief resolution which the committee requested the Section to adopt. This resolution points out that the present constitution of the Pharmacopeial Convention makes no provision for representation of the dental profession and requests that provision be made whereby the Section on Stomatology of the American Medical Association shall be entitled to representation on the Committee of Revision.

The more carefully these reports are studied the more food for thought they are found to contain. It is not possible or desirable to discuss them at present. One point should, however, be mentioned: There is nothing in these reports to indicate that representative medical men feel a need for the complex proprietary mixtures with which the American market is flooded, a supposed need which the last Committee of Revision endeavored to meet by the inclusion of a number of formulas for similar mixtures. Another point worthy of consideration is the number of preparations recommended by these committees for omission from the Pharmacopeia which were admitted only in the last revision (which appeared in 1905). The most reasonable explanation of this is that the last Committee on Revision was not sufficiently well informed as to the wishes of the medical profession as to the scope of the Pharmacopeia. Finally, the resolution suggested by the Section on Stomatology (that the dental profession be entitled to representation on the Committee of Revision) brings up the large question whether the basis of representation in Pharmacopeia matters is not very far from just. Every incorporated college of medicine and of pharmacy, the incorporated state medical and pharmaceutical societies and certain other bodies are entitled to representation, but the great American dental profession—the profession which gave the world the first general anesthetic, for example—is not given any representation whatever. (In this connection it may also be pointed out that veterinary medicine also receives no recognition by the U. S. Pharmacopeia, although its needs are recognized by the Food and Drugs Act and by most foreign pharmacopeias).

REID HUNT, Washington, D. C.

A Protest Against the Arrogant Surgeon Specialist

To the Editor:—I wish to express my views in regard to the present agitation which is being voiced by some of our older practitioners with reference to a special course in surgery for younger men. I at least have the courage of my opinions and in justice to myself and many others engaged in general practice who are called on to do surgery when occasion arises to call a halt on the so-called specialists in surgery, who wish to claim the field entirely for themselves, and on one plea and another enter a protest of incompetency against their competitors.

What right may I ask has any one engaged in the practice of medicine or surgery to say how much the other man shall do, or not do? Are we not all licensed under the same state laws and are not our qualifications equally as valid as the men who wish to dictate how a man should be specially qualified to do an abdominal section. As a matter of fact, with the exception of the mechanical dexterity acquired by practice, the balance is in favor of the younger man. He has the advantage of a higher education and a better and longer training.

Most of the men who value their opinions to-day as something very superior to that of the younger men, lack the saving grace of even a good high school education and I venture to say that if these men were called on to take a state board examination such as are now being held in several states, would make a sad failure of it.

I have no doubt that at the present day there is much more competition and younger men do as much of their surgery as they can without calling in the old timers, or seek the advice of men of their own class or years, and hence the outcry, but "Time and tide waits for no man."

Every one has the same opportunity and it depends largely on the personal equation as to what advantage is taken of it. The mere fact that a man has had an extra year as an interne in a large hospital does not make him a surgeon any more than the man after graduation who is on his own hook for the same length of time in a general practice; of the two the latter has at least self reliance—and has learned to think and act for himself, he is practically that much ahead of the other fellow.

C. VAUGHAN, Detroit.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

PHYSIOLOGIC ACTION OF CALCIUM LACTATE

To the Editor:—A case of epilepsy treated by calcium lactate is reported in THE JOURNAL, Aug. 14, 1909, p. 527. I have not been able to find any literature on the physiologic action of this salt. I would be thankful to have you describe its action in Queries and Minor Notes.

HUBERT H. JOHNSON, Salinas, Mex.

ANSWER.—The calcium salts appear to increase the energy of the heart's action; the presence of calcium in the nourishing liquid is absolutely essential for the continuance of cardiac action, not only in cold but also in warm blooded animals. Calcium in small doses stimulates both voluntary and involuntary muscles. In small doses calcium chlorid increases the functional activity of the motor nerve trunks, but in large doses it paralyzes the cerebral cortex, the motor centers of the spinal cord and the motor nerve trunks. Calcium salts are essential to the process of coagulation of the blood. It is claimed that calcium chlorid and calcium lactate increase the coagulability of the blood for which reason they have been used to prevent hemorrhage. Recent investigations seem to prove that it is not possible to shorten coagulation time by the calcium salts. The question as to their employment for this purpose is therefore *sub judice* (see editorial in THE JOURNAL, March 6, 1909, p. 788, also Addis, T.: *Quart. Jour. Med.*, January, 1909, also *Quart. Jour. Exper. Physiol.*, 1908, i, 305, Abstr. in THE JOURNAL, April 17, 1909, p. 1283).

According to J. D. Zoethout (*Amer. Jour. Physiol.*, February, 1909, abstr. in THE JOURNAL, March 27, 1909, p. 1060), calcium favors the relaxation of potassium contraction. MacCallum and Voegtlin (*Jour. Exper. Med.*, 1909, xi, 118) have found that the nerve manifestation of tetany can be held in check by the administration of calcium salts.

In animals after parathyroidectomy there occurs an increased elimination of calcium in the urine and feces which results in a marked reduction of calcium content of the blood and brain and the consequent development of hyperexcitability of the nerve cells. The lack of calcium may therefore be one of the causes of epilepsy and suggests the reason for the use of these salts in that disease. It is believed that disturbances in the calcium metabolism are closely connected with abnormalities of the ductless glands, thyroid, pituitary, etc. (W. B. Bell and P. Hick, *Brit. Med. Jour.*, Feb. 27, 1909).

The action of the lactate of calcium is similar to that of the chlorid but it is less irritating and therefore it may be used hypodermatically.

WANTED: OUTDOOR WORK-CURE SANITARIUM FOR ALCOHOLISM

A correspondent in the middle west asks us where there is a sanitarium—perhaps on a large farm—where a man of 40, who has a cultured mind and a vigorous physique, would receive scientific treatment for alcoholism, together with physical work and mental diversion. Perhaps some of our readers can make suggestions.

ALCOHOL STRENGTH FOR CLEANING HANDS

To the Editor:—In scrubbing the hands preparatory to doing an operation, after the use of soap and water for ten minutes, what strength alcohol should be used, 70 per cent. or 95 per cent.?

E. L. C., New York.

ANSWER.—Alcohol of 70 per cent. strength should be used because the 95 per cent. alcohol coagulates albumins to such an extent as to nullify the purpose for which it is used—to free the skin of fats in which germs may be encased.

The Public Service

Medical Department of the Army

Changes for the week ended Oct. 23, 1909:

Blanchard, R. M., capt., granted sick leave of absence for 1 month.

Davidson, W. F., capt., granted leave of absence for 1 month.

Wison, J. S., major, ordered to Alcatraz Island, Cal., for duty at the Pacific Branch, U. S. Military Prison.

Thornburgh, R. M., capt., relieved from duty at the Pacific Branch, U. S. Military Prison, Alcatraz Island, Cal., and ordered to the A. G. Hospital, San Francisco, for duty.

Winter, F. A., major, relieved from duty at Fort Myer, Va., and ordered to duty in the office of the Surgeon-General.

Hoff, J. Van R., col., relieved from duty as chief surgeon, Dept. of the Lakes, to take effect on the relief of Col. Charles B. Bryne, M. C., from duty as chief surgeon, Dept. of the East; will then proceed to Governor's Island, N. Y., for duty as chief surgeon, Dept. of the East.

Fuller, L. A., major, granted leave of absence for 14 days.

Raymond, T. U., major, granted leave of absence for 1 month and 15 days.

Heysinger, J. D., capt., granted leave of absence for 1 month.

Marvin, M. F., M. R. C., honorably discharged from the Service of the United States, his services being no longer required.

Adams, P. A., M. R. C., ordered to active duty; will proceed to Schofield Barracks, H. T., for duty.

Holmes, T. G., M. R. C., granted leave of absence to December 15, and honorably discharged from the Service on that date.

Cole, Blase, M. R. C., ordered to active duty; will proceed to Fort Crook, Neb., for duty.

Flynn, T. J., M. R. C., ordered to active duty; will proceed to Fort Ethan Allan, Vt., for duty.

Pinquard, Jos., M. R. C., granted sick leave of absence for 4 months.

Pargon, J. A., M. R. C., honorably discharged from the Service of the United States, his services being no longer required.

Drake, P. G., M. R. C., granted leave of absence for 1 month.

Bailey, Edward, M. R. C., order for Philippine Service revoked.

Freeland, H. L., M. R. C., relieved from duty at Fort Leavenworth, Kan.; will proceed to San Francisco, and sail December 6th for Philippine Service.

Medical Corps of the Navy

Changes for the week ended Oct. 23, 1909:

Shippen, L. P., asst.-surgeon, on reporting at the Navy Department ordered to the Navy Yard, Portsmouth, N. H., for duty at the Naval Prison.

Camerer, C. R., acting asst.-surgeon, appointed acting assistant-surgeon, ordered to instruction at the Naval Medical School, Washington, D. C.

Pryor, J. C., surgeon, detached from command of the Naval Hospital, Yokohama, Japan, and ordered home in the United States, via Europe, with permission to delay 3 months en route.

Bogert, E. S., Jr., surgeon, detached from the Navy Yard, New York, N. Y., and ordered to command the Naval Hospital, Yokahama, Japan.

Foster, T. G., asst.-surgeon, detached from duty at the Naval Prison, Navy Yard, Portsmouth, N. H., granted leave until November 15, on completion thereof ordered to Washington, D. C., for examination and then to wait orders.

Leach, P., medical inspector, detached from command of the Naval Hospital, Newport, R. I., granted leave for 1 month, and on expiration thereof ordered to command the Naval Hospital, Las Animas, Colo.

Hibbett, C. T., medical inspector, detached from command of the Naval Hospital, Las Animas, Colo., and ordered home to wait orders.

McCormick, A. M. D., surgeon, ordered to duty at the works of the General Electric Company, Schenectady, N. Y.

Hathaway, G. S., P. A. surgeon, detached from the *Cheyenne* and ordered to duty in connection with the fitting out of the *New Orleans* and to duty on board that vessel when commissioned.

Public Health and Marine-Hospital Service

Changes for the seven days ended Oct. 20, 1909:

Kerr, J. W., asst. surgeon-general, and Lavinder, C. H., P. A. surgeon, detailed to represent the Service in a National Conference on Pellagra, to be held in Columbia, S. C., Nov. 3-4, 1909.

Woodward, R. M., surgeon, granted 14 days' leave of absence from Oct. 16, 1909, on account of sickness.

Robertson, H. M., P. A. surgeon, leave granted for 2 months from Oct. 1, 1909, amended to read 2 months from Oct. 4, 1909.

Roberts, Norman, P. A. surgeon, granted 2 days' leave of absence from Oct. 13, 1909, under Paragraph 191, Service Regulations.

Sweet, E. A., P. A. surgeon, Bureau order of Oct. 12, 1909 suspended.

Sweet, E. A., P. A. surgeon, directed to accompany a deported alien leper sailing from New York, Oct. 20, 1909.

Frost, W. H., P. A. surgeon, granted 9 days' leave of absence from Oct. 23, 1909.

Ashford, F. A., P. A. surgeon, Bureau order of Oct. 12, 1909 suspended.

Wollenberg, R. A. C., asst.-surgeon, leave granted for 2 months from Sept. 10, 1909, amended to read 2 months from October 6, 1909.

Kolb, L., asst.-surgeon, relieved from duty at Baltimore, and directed to proceed to the Reedy Island Quarantine Station and report to the Medical Officer in Command for duty and assignment to quarters.

Barnes, W., acting asst.-surgeon, granted 30 days' leave of absence from Nov. 1, 1909.

Bean, L. C., acting asst.-surgeon, granted 5 days' leave of absence from Oct. 23, 1909.

Curley, C. P., acting asst.-surgeon, leave granted for 21 days from Sept. 25, 1909, amended to read 16 days from Sept. 21, 1909.

Delgado, J. M., acting asst.-surgeon, granted 22 days' leave of absence from November 5, 1909.

Fisher, C. E., acting asst.-surgeon, granted 16 days' leave of absence from Oct. 15, 1909.

Gustetter, A. L., acting asst.-surgeon, leave granted for 5 days from Oct. 13, 1909, amended to read 5 days from Oct. 16, 1909.

Kimmet, W. A., acting asst.-surgeon, granted 30 days' leave of absence from Oct. 15, 1909.

Onuf, B., acting asst.-surgeon, granted 4 days' extension of annual leave from Oct. 5, 1909, on account of sickness.

Onuf, B., acting asst.-surgeon, granted 23 days' leave of absence from Oct. 21, 1909.

Wise, A. H., acting asst.-surgeon, granted 15 days' leave of absence from October 16, 1909.

APPOINTMENT

Dr. Clifton R. Wallace, appointed an Acting Assistant Surgeon, for duty at Norfolk, Va

RESIGNATION

Acting Assistant Surgeon A. H. Wise, resigned, to take effect Oct. 31, 1909.

BOARD CONVENED

Board of medical officers convened to meet at Seattle, Wash., Oct. 16, 1909, for the purpose of examining an alien. Detail for the board: Passed Assistant Surgeon M. W. Glover, chairman; Assistant Surgeon C. W. Chapin; Acting Assistant Surgeon F. R. Underwood, recorder.

Health Reports

The following have been reported to the Marine-Hospital Service, during the week ended Oct. 22, 1909:

SMALLPOX—UNITED STATES

District of Columbia: Washington, Oct. 2-9, 3 cases.
Indiana: Fort Wayne, Sept. 18-Oct. 2, 15 cases.
New York: Buffalo, Oct. 2-9, 1 case.
North Carolina: Charlotte, Oct. 1-8, 3 cases.
Ohio: Cincinnati, Oct. 2-9, 1 case; Dayton, 1 case.
Oklahoma, general, Aug. 1-31, 18 cases.
Wisconsin: La Crosse, Oct. 2-9, 1 case.

SMALLPOX—FOREIGN

Canada: Hamilton, Sept. 1-30, 2 cases.
Gibraltar, Sept. 19-26, 2 cases.
India: Calcutta, Aug. 21-Sept. 4, 2 deaths; Madras, Sept. 4-10, 1 death; Rangoon, Aug. 28-Sept. 4, 1 death.
Italy: Genoa, Sept. 1-30, 7 cases; Naples, Sept. 26-Oct. 2, 17 cases 4 deaths.
Java: Batavia, Aug. 21-28, 4 cases, 1 death.
Malta, Sept. 4-11, 2 cases.
Mexico: Veracruz, Sept. 26-Oct. 3, 1 case, 1 death, imported.
Portugal: Lisbon, Sept. 11-25, 13 cases.
Russia: Moscow, Sept. 11-25, 7 cases, 2 deaths; Odessa, Sept. 18-25, 2 cases, 1 death; Riga, 2 cases; Warsaw, Aug. 14-28, 2 deaths.
Spain: Valencia, Sept. 18-25, 1 case; Vigo, 1 death.
Turkey: Smyrna, Aug. 5-Sept. 17, 79 deaths.

YELLOW FEVER

Brazil: Para, Sept. 11-25, 4 cases, 2 deaths.
Ecuador: Guayaquil, Sept. 11-18, 3 deaths.

CHOLERA—INSULAR

Philippine Islands: Manila, Aug. 28-Sept. 4, 8 cases, 6 deaths; Provinces, 201 cases, 114 deaths.

CHOLERA—FOREIGN

China: Hankow, Aug. 21-28, 1 case.
India: Bombay, Sept. 7-14, 22 deaths; Calcutta, Aug. 21-Sept. 4, 10 deaths; Rangoon, Aug. 28-Sept. 4, 3 deaths.
Japan: Kobe, Sept. 6, 3 cases, 1 death.
Korea: Seoul, Sept. 23, present.
Netherlands: Hansweert, Sept. 27-29, 2 cases; Lobik, 1 case.
Russia, general, Sept. 18-Oct. 1, 1,365 cases, 587 deaths; St. Petersburg, 510 cases, 201 deaths.

PLAGUE—INSULAR

Hawaii: Hilo, Sept. 19, 1 case, vicinity.

PLAGUE—FOREIGN

Chile: Iquique, Sept. 8, 2 cases in lazaretto.
Ecuador: Guayaquil, Sept. 11-18, 11 deaths.
India, general, Aug. 21-28, 2,297 cases, 1,811 deaths, Aug. 28-Sept. 4, 2,837 cases, 1,852 deaths; Bombay, Sept. 7-14, 9 deaths; Calcutta, Aug. 21-28, 16 deaths; Rangoon, Aug. 28-Sept. 4, 7 deaths.
Indo-China: Saigon, Aug. 21-Sept. 4, 15 cases, 14 deaths.
Japan: Kobe, Sept. 4-11, 7 cases, 6 deaths.
Peru, general, Aug. 20-27, 16 cases, 12 deaths.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, POSTGRADUATE WORK, CONTRACT PRACTICE, INSURANCE FEES, LEGISLATION, ETC.

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

DR. JOHN H. BLACKBURN, DIRECTOR
BOWLING GREEN, KENTUCKY

[The Director will be glad to furnish further information and literature to any county society desiring to take up the course.]

Third Month: "The Exanthemata"—First Weekly Meeting

ANATOMY OF THE SKIN

Epidermis, stratum corneum, stratum lucidum, stratum granulosum, stratum mucosum. Corium. Pars papillaris, pars reticularis. Subcutaneous layer. Blood vessels, lymph vessels, muscles, glands, appendages.

PHYSIOLOGY OF THE SKIN

Protective function, heat-regulation, tactile and pain sensations, respiratory and secretory functions, elimination.

MEASLES (RUBEOLA)

Period of incubation, mode of infection, duration of infection. Symptoms, period of invasion, prodromal rashes. Eruptive period, character of eruption, varieties of eruption, desquamation. Complications. Throat, larynx, lungs, digestive system, nervous system, ears and eyes.

Prognosis. Age and condition of patient, season, character of epidemic, complications.

RUBELLA (GERMAN MEASLES)

Symptoms. Period of incubation. Invasion. Eruption, character and variations, desquamation. Diagnosis and differentiation from measles and scarlet fever.

REFERENCE BOOKS FOR THE THIRD MONTH

Welch and Schamberg: Acute Contagious Diseases.
Schamberg: Skin and Infectious Diseases.
Abbott: Hygiene of Transmissible Diseases.
Fox: Smallpox.
Text-books on Pediatrics and on Practice of Medicine.

Treatment of Pellagra.—Acting Assistant Surgeon Moorer (*Public Health Reports*, Oct. 15, 1909) states that he has had during the past five years six cases of pellagra under his observation at the Georgetown, S. C., infirmary. The majority of the cases were in negroes between the ages of 20 and 40. Five patients have completely recovered, the fate of the sixth, who was sent to the state insane asylum being unknown to him. The treatment employed in these cases was strychnin, arsenic and tincture of iron in large and increasing doses, and a strict dietary of two or three quarts of milk with from eight to ten raw eggs a day.

Marriages

DAVID HENRY, M.D., to Miss Anna K. Lechell, both of Philadelphia, October 27.

J. D. LEONARD, M.D., to Miss Margaret Smith, both of Bristol, Tenn., October 4.

ASBURY HULL, M.D., Augusta, Ga., to Miss Martha Miller, of Macon, Ga., October 26.

WILLIAM B. SHICK, M.D., to Miss Mable D. Tully, both of Philadelphia, September 21.

GEORGE CONNOR TRAWICK, M.D., to Miss Alice Rodes, both of Nashville, Tenn., October 10.

THOMAS W. PENROSE, M.D., to Miss Esther M. Eastburn, both of Philadelphia, October 9.

RAY RHINALDO HARRIS, M.D., Dubuque, Iowa, to Miss Ethel Alice Larkin, of Chicago, October 20.

AL. EDGAR BILLINGS, M.D., Topeka, Kan., to Miss Clara A. Jaeger, of Rich Hill, Mo., September 29.

FLETCHER J. WRIGHT, M.D., Fork Union, Va., to Miss Anne Davis Seay, at Blackstone, Va., October 14.

A. GAZAB, M.D., Cairo, Egypt, to NELLIE CHRISTINE HAMEISTER, M.D., of Kirkwood, Mo., October 25.

SMITH HAMILL HORNE, M.D., Philadelphia, Pa., to Mrs. Caroline S. Reed, of Wayne, Pa., October 14.

WILLIAM MELVIN RUCKLE, M.D., Grand Rapids, Wis., to Miss Olive Bemis, of Neenah, Wis., October 12.

ROY ERNEST SEITZ, M.D., Musselshell, Mont., to Miss Rosa Waters Ridgely, of Washington, D. C., October 7.

ARCHIBALD EASTWOOD CHACE, M.D., Tarrytown, N. Y., to Miss Ruth Lombard, of Nyack, N. Y., October 16.

LEO L. C. LEMOINE, M.D., St. Louis, Mo., to Miss Kate Zimmer, of Waterloo, Ill., at Clayton, Mo., October 3.

W. L. DUBOIS, M.D., Towner, N. D., to Miss Mayme L. Dougherty, of Rockwell City, Iowa, September 30.

CHARLES WALLACE EDMUNDS, M.D., Ann Arbor, Mich., to Miss Lillian Virginia Kaminski, of Richmond, Ind., September 15.

Deaths

Randal R. Hunter, M.D. Jefferson Medical College, Philadelphia, 1876; of Fulton, Kan.; a member of the American Medical Association; gold medalist of the Howard Association of Memphis, Tenn., 1878; a member of the Association of Military Surgeons of the United States; acting assistant surgeon U. S. Army, and major and brigade surgeon U. S. V., during the Spanish-American War, with service in Cuba; city chemist and a member of the Board of Health of Kansas City, Mo., from 1887 to 1894; emeritus professor of chemistry in the University Medical College of Kansas City; died in Hot Springs, Ark., October 13, from paralysis, aged 54.

Lewis Albert McFadden, M.D. Kentucky School of Medicine, Louisville, 1881; a member of the American Medical Association, and vice-president of the Peoria (Ill.) Medical Society; a member of the staff of St. Francis Hospital, Peoria; formerly physician of Peoria county and a member of the city board of health; chairman of the local board of U. S. pension examining surgeons; in 1896 elected alderman, and in 1901, appointed health commissioner; in 1886, alderman of Aurora, Texas, and afterward postmaster of Virginia, Mo.; died at his home October 16, from cancer of the intestine, aged 61.

Leonard Pearson, B.S.; V.M.D.; M.D. (Hon.) University of Pennsylvania, Philadelphia, 1907; of Philadelphia; dean of the Department of Veterinary Medicine in his alma mater; formerly state veterinarian of Pennsylvania; and a member of the Pennsylvania Live Stock Sanitary Board; a member of the department of the health of the State of Pennsylvania and the board of health of Philadelphia; one of the foremost exponents of preventive veterinary medicine; died suddenly in Spruce Creek, New Foundland, September 20, aged 41.

William Hudson Pitt, M.D. University of Buffalo, N. Y., 1879; for eighteen years professor of physics in the Buffalo High School; in 1881 and 1882, state analyst of foods and drugs; and in 1884 appointed professor of chemistry and physics in Niagara University; a biologist and chemist occupying a commanding position among the scientists of the country; died at his home in Friendship, N. Y., July 11, aged 78.

William A. Gordon, M.D. Rush Medical College, Chicago, 1869; of Winnebago, Wis.; a member of the State Medical Society of Wisconsin; a veteran of the Civil War; for fifteen years superintendent of the Northern Hospital for the Insane, Oshkosh; an eminent physician, distinguished alienist, and brilliant scholar; died in the Chicago Hospital, October 12, from hemorrhage, due to a carcinoma of the bladder, aged 62.

James L. Mounts, M.D. Starling Medical College, Columbus, Ohio, 1856; a member of the American Medical Association; surgeon of the Thirty-first and One Hundred and Forty-fourth Ohio Volunteer Infantry during the Civil War; state senator in 1879; surgeon to the Panhandle and Columbus and Hocking Valley railroads; died at his home in Morrow, Ohio, October 21, aged 78.

Joseph Lewis Snively, M.D. Jefferson Medical College, Philadelphia, 1877; a member of the American Medical Association and Cumberland Valley Medical Association; president of the Medical Society of Franklin County, Pa., in 1901; and afterward district censor for Franklin county; died at his home in Shady Grove, Pa., October 14, from typhoid fever, aged 58.

George Clark McNett, M.D. New York University, New York City, 1881; a member of the American Medical Association; local surgeon for the Delaware, Lackawanna and Western Railroad; for several years chief surgeon of the State Soldiers' Home, Bath, N. Y.; died in that place, October 15, from disease of the kidney, aged 52.

Lafayette Shoemaker, M.D. Kentucky School of Medicine, Louisville, 1893; a Confederate veteran; a member of the State Medical Association of Texas; and formerly vice-president of the Choctaw County (Ala.) Medical Society; a practitioner for more than thirty-five years; died at his home in Axtell, September 23, aged 68.

Lewis Henry Bodman, M.D. College of Physicians and Surgeons, New York City, 1863; a member of the American Medical Association; consulting physician to St. Vincent's and the Toledo Hospital, Toledo, Ohio; a medical cadet in the Federal service during the Civil War; died at his home, October 18, aged 69.

Alexander Macnab, M.D. University of Aberdeen, Scotland, 1861; a member of the Iowa State Medical Society; assistant surgeon of the Twelfth Missouri Volunteer Infantry during the Civil War; died at the home of his son in Rock Rapids, Iowa, July 28, from cerebral hemorrhage, aged 74.

Maurice John Stack, M.D. University of Georgetown, Washington, D. C., 1876; for thirty-three years assistant superintendent of St. Elizabeth's Hospital, the Government Hospital for the Insane, Washington; died in that institution, October 17, from cancer of the throat, aged 55.

Thomas Keefe, M.D. Cooper Medical College, San Francisco, 1882; for many years a practitioner of Snohomish, Wash.; and a member of the Snohomish County Medical Society; died suddenly at his home in Georgetown, Wash., January 3, from heart disease, aged 71.

Henrietta Payne Westbrook, M.D. Woman's Medical College of Pennsylvania, 1880; of Philadelphia; president of the Health Protective Society and the Woman's Press Club of Philadelphia; died at her summer home in Burrillville, R. I., October 16, aged 74.

Rebecca Cooper Hallowell, M.D. Woman's Medical College of Pennsylvania, Philadelphia, 1878; formerly a medical missionary to the Indians in Southern California; died at her home in Haddonfield, N. J., October 12, from heart disease, aged 77.

Josiah M. Thompson, M.D. Jefferson Medical College, Philadelphia, 1875;; a veteran of the Civil War; and once president of the federal board of pensions of Kansas; died at his home in Kansas City, Kan., October 11, from bronchitis, aged 66.

Nova William Wingo, M.D. University Medical College of Kansas City, Mo., 1892; formerly of Harris, Mo.; died in his office in Chillicothe, Mo., October 11, from the effects of carbolic acid, self-administered, it is believed with suicidal intent, aged 45.

Ralph A. Polly, M.D. Memphis (Tenn.) Hospital Medical College, 1902; of Rogers, Texas; a member of the State Medical Association of Texas; died in a hospital in Temple, Texas, August 21, after an operation for the removal of gall-stone, aged 36.

John Williams (license, Ind., 1897); for more than sixty-five years an Eclectic practitioner of Clay county, Ind.; a veteran of the Civil War; died at the home of his daughter, near Bowling Green, October 4, from senile debility, aged 97.

William Joseph Dodd, M.D. Bellevue Hospital Medical College,, New York City, 1865; surgeon on the U. S. Army Hospital Steamer *Deford*, during the Civil War; died at his home in Jersey City, N. J., October 20, from senile debility, aged 79.

Edmund B. Mosher, M.D. Louisville (Ky.) Medical College, 1871; surgeon of the One Hundred and Seventy-Second Ohio Volunteer Infantry during the Civil War; died at his home in Columbus, Ohio, October 11, from disease of the liver, aged 71.

Solomon Apfel, M.D. University of Lemberg, Austria, 1871; once a member of the Austrian Chamber of Deputies; and mayor of Kolboszzawa, Austria; died at his home in Brooklyn, N. Y., October 16, from paralysis, aged 65.

Milton Homer Collins, M.D. University of Tennessee, Nashville, 1884; a member of the Medical Society of the State of Alabama; died at his home in North Birmingham, October 16, from cerebral hemorrhage, aged 51.

Hammond Hampton Garner, M.D. University of Maryland, Baltimore, 1902; of Lake Toxaway, N. C.; surgeon of the steamer *Dextero*; died in the City Hospital, Santos, Brazil, South America, in July, aged 31.

William Levi Fleming, M.D. Missouri Medical College, St. Louis, 1868; a member of the Shelby County (Ill.) Medical Society; died at his home in Shelbyville, October 10, from disease of the lungs, aged 74.

Abram Canfield (license, Minn., exemption certificate, 1883); for forty-three years a practitioner of Sauk Center, Minn.; died at the home of his son in that city, October 7, from senile debility, aged 87.

Joseph Saunders, M.D. Indiana Medical College, Indianapolis, 1874; for twenty years president of the Madison County, Ind., Farmers' Insurance Company; died at his home near Anderson, recently, aged 60.

James McGuire, M.D. New York University, New York City, 1857; formerly a member of the Medical Society of the State of North Carolina; died at his home in Mocksville, August 21, aged 80.

Frederick B. Williamson, M.D. Starling Medical College, Columbus, Ohio, 1888; a member of the Ohio State Medical Association; died at his home in Massillon, October 14, from pneumonia, aged 44.

Frank R. Calhoun, M.D. Medical College of the State of South Carolina, Charleston, 1867; for four years a surgeon in the Confederate service; died at his home in Cartersville, Ga., October 15, aged 74.

Alfred Swift Houghton, M.D. College of Physicians and Surgeons, New York City, 1880; for several years connected with the New York civil service; died at his home in St. Albans, Vt., July 29.

Charles Willard Pierce, M.D. Harvard Medical School, Boston, 1900; a member of the American Medical Association; died at his home in Allston, Boston, October 9, from typhoid fever, aged 37.

William Newton Rand, M.D. University of Vermont, Burlington, 1883; examiner in lunacy; died at his home in Binghamton, N. Y., September 25, from cerebral hemorrhage, aged 50.

Roger Button Smith, M.D. Hospital College of Medicine, Louisville, 1897; of Orchardville, Ill.; is said to have committed suicide, by gunshot wound, at his home, October 16, on account of domestic troubles, aged 37.

Jacob Goldstein, M.D. Bellevue Hospital Medical College, 1895; of New York City; died in Mount Sinai Hospital, October 13, from acute yellow atrophy of the liver.

Joseph W. Davenport., M.D. Medical College of the State of South Carolina, Charleston, 1848; of Tyler, Texas; died at the home of his daughter in that place, October 14, aged 84.

John W. Alford, M.D. Eclectic Medical Institute, Cincinnati, 1875; a veteran of the Civil War; of Mullinville, Kan.; died in a hospital in Hutchinson, Kan., October 11, aged 67.

George T. Snode, M.D. Starling Medical College, Columbus, Ohio, 1888; a member of the Ohio State Medical Association; died at his home in Sarahsville, October 13, aged 51.

Villanovia Mason Burdick, M.D. University of Vermont, Burlington, 1887; died at his home in Dexter, Maine, August 23, from cancer of the stomach, aged 57.

Oliver Henry Reiley, M.D. St. Louis University, School of Medicine, 1906; died at his home in Red Oak, Iowa, September 12, from acute gastritis, aged 27.

James B. Statler (years of practice, Pa.); for thirty-five years a practitioner of New Paris, Pa.; died at his home, September 27, from dysentery, aged 65.

William H. Mann, M.D. Atlanta (Ga.) Medical College, 1892; of Glennville, Ga.; died in Savannah, October 17, from septicemia, due to a carbuncle, aged 43.

William Ramsey, (license, years of practice, Ohio); for fifty-seven years a practitioner of Delta; died at his home in that place, October 10, aged 82.

M. H. Christian (license, Ill.); for many years a practitioner of Camargo, Ill.; died at his home in Summit township, near Effingham, October 8.

Abram Duane Salisbury, M.D. University of Michigan, Ann Arbor, 1865; died at his home in Midland, Mich., October 16, from septicemia.

Oswald Edward Jacob Kauffman, M.D. Tulane University, New Orleans, La., 1905; died at his home in Plaisance, La., October 8, aged 26.

David Hamilton, M.D. Queen's University, Kingston, Ont., 1862; of Batavia, N. Y.; died in the Batavia Hospital, October 8, aged 70.

William Rhea Douthit, M.D. Vanderbilt University, Nashville, 1892; died at his home in Louisville, Tenn., October 16, aged 48.

Harry B. Pleasants, M.D. Medical College of Virginia, Richmond, 1879; died at his home in Hollins, Va., October 15, aged 54.

Barbara Albrecht, (license, Ohio, ten years practice, 1896); died at her home in Cincinnati, March 28, from diabetes, aged 74.

Sara Jane Williams (license, Mass., 1894); died in Boston, Mass., Sept. 27, 1908, from general paresis, aged 67.

W. J. Trent, (license, N. C.); died at his home near Earl, August 1, aged 76.

Society Proceedings

COMING MEETINGS

Hawaiian Territorial Medical Society, Honolulu, November 19.
Medical Association of the Southwest, San Antonio, Tex., Nov. 9-11.
Ohio Valley Medical Association, Evansville, Ind., November 10-11.
Southern Medical Association, New Orleans, November 9-11.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION

Thirty-Fifth Annual Meeting, Held at St. Louis, Oct. 12-14, 1909

(Continued from page 1419)

Tuberculous Toxemia in Surgery

DR. ALEXANDER C. WIENER, Chicago: In this paper I present the following therapeutic conclusions: 1. Obstruction of the respiratory organs which curtail the intake of air are to be removed by the nose and throat surgeon. Too much stress cannot be laid on the removal of enlarged tonsils and adenoids by the skilled operator. Other anomalies, such as phimosis, should be remedied. 2. Mechanical treatment should be undertaken to correct all deformities of the skeleton, particularly the spine and chest. Children and adults who begin to develop round shoulders, with the subsequent hollows below and above the clavicles, need urgent treatment. It is harmful to advise the wearing of apparatus for support during the growing period. Braces should be discarded as therapeutic agents in the treatment of deformities of the spine due to rickets. Instead, the treatment should consist of: (a) Complete mobilization of all the intervertebral and vertebro-costal joints. (b) Correction of deformities of the vertebra and ribs. (c) Active and passive exercise of the respiratory muscles, including the diaphragm.

DISCUSSION

DR. F. M. POTTENGER, Monrovia, Cal.: The more we study the infection in tuberculosis the more we come to the conclusion that infection takes place in a great number of people early in life, and that most of us go through life with at least quiescent foci of tuberculosis within our bodies. These quiescent foci are not always negative and they do produce symptoms which have not been generally recognized. Toxemia in young neurasthenic school girls in my opinion is undoubtedly due to latent foci of tuberculosis and I have seen a number of such patients recover after treatment for tuberculosis.

Elements of Success in Surgical Work

DR. A. H. CORDIER, Kansas City, Mo.: 1. The field of surgery is a vast one and is best covered by the specialist in some of its departments, the eye and the ear especially. 2. Surgery and medicine should go hand in hand in the treatment of border-line cases, but should be divorced in the strictly surgical or strictly medical cases. 3. The selection of a surgeon for a given case should be from no other standpoint than that of his recognized ability. 4. A surgical operation should be performed as quickly as possible, consistent with good and completed technic. 5. All unnecessary and rough handling of important tissues and organs should be avoided. 6. Careful short anesthesia will help to keep the death-rate low. 7. Careful hemostasis with proper ligature material is an important element in successful surgery. 8. Thorough aseptic technic should be carried out and may be obtained either with or without rubber gloves and mask. 9. Lawn-tennis suits and gloves are only too often the avenues leading to wound infection. 10. Short postgraduate courses instill false surgical confidence and lead to many surgical disasters. 11. Honesty and sincerity should ever be the keynote in deciding as to the advisability of performing any surgical operation. 12. Mental tranquillity of the patient is of much importance preceding the performance of some surgical operations.

DISCUSSION

DR. H. HENRY CARSTENS, Detroit: No one has a right to practice surgery, and especially abdominal surgery, unless he has been an assistant for at least one year with some first-class surgeon, in a hospital where he has seen hundreds of operations and has witnessed the troubles, trials and complications that are encountered. Educated people know and find out who are the good surgeons. The general practitioner ought to know who is a good surgeon and ought not to trust everyone to perform operations which are attended with great danger to life.

DR. M. C. MCGANNON, Nashville: I am not willing to admit that surgical work of the pioneer was as good as that which is being done to-day. The enthusiasm of youth leads many a recent graduate to rush into the field of large surgery where he had better keep out until better trained. But how are we to stop that? It is the duty of this and other societies to adopt such measures as will prevent enthusiastic young men from rushing into a field of work that they cannot fill. Many of us have seen disasters following the surgical work of inexperienced men.

DR. CHANNING W. BARRETT, Chicago: Surgery has come to occupy a large place in the world, and it is our business as members of the medical profession to see that our surgical work is made just as successful as possible. The time has gone by when a man can plunge into surgical work and kill patients in order to learn how to do surgery. The opportunities for learning surgery now are too great and too cheap to permit of inexperienced men operating, and surgeons are only too willing to train those who wish to become surgeons.

Conditions Simulating Surgical Diseases

DR. M. C. MCGANNON, Nashville: It is not often that a surgeon is called on to reverse a diagnosis of chronic peritonitis in favor of spinal neurosis of traumatic origin, and yet such was my experience a few months ago. Cases of appendicitis have been on many occasions confounded with pleurisy and pneumonia. Many authors have called attention to the fact that pain associated with pneumonia and pleurisy, especially in children, may, if referred to the abdomen, and, if right-sided, occasion a diagnosis of appendicitis. Two such cases have been referred to me for operation, in which appendicitis was so closely simulated as to deceive good practitioners.

DISCUSSION

DR. EDWIN WALKER, Evansville: I am reminded of a case in which a man had locomotor ataxia, and the proposition was made to operate on him for gall-stones. The patient afterward fell into the hands of a surgeon who operated for gall-stones, but no stones were found. This man subsequently died of acute pneumonia and from an extension of the ataxia.

DR. J. HENRY CARSTENS, Detroit: Two years ago a woman was brought to me with large fibroid tumors. She had been vomiting for three weeks off and on and could not sleep. I ran my finger over the clavicle and over the tibiæ, gave her one-quarter of a grain of bichlorid of mercury hypodermically every day, and in four or five days she was able to sleep well, the vomiting ceased and the fibroids had nothing to do with those symptoms. I saw a man who was supposed to have had gall-stones. I looked at his tongue, saw a blue line along the edge of it, and said to him: "You are a painter, are you not?" And he replied, "Yes, sir." I told him he was not suffering from gall-stones, but from lead poisoning.

DR. J. R. EASTMAN, Indianapolis: The general practitioner and internal medicine man ought to be educated along these lines. I went with two competent physicians in the summer in the country to examine a little girl whose case was diagnosticated as appendicitis. A mass had been described as present in the right groin. The little girl was 11 years of age, and these physicians considered it a clear case of appendicitis. While I sat at the bedside she took her handkerchief, expectorated profusely, and it proved to be tuberculosis.

DR. RICHARD A. BARR, Nashville: I was called to the country a year ago to operate for appendicitis, the operation having been delayed for a number of days. On examination, I decided that this patient did not have appendicitis, but typhoid, and was able to persuade the attending physician that I was correct, and no operation was done. I took some of the patient's blood with me, had it examined; a Widal reaction was made, which proved to be negative.

DR. WILLIAM B. BURNS, Memphis: I have seen some cases presenting symptoms of appendicitis which were as positive as we usually see them, but examination of the blood showed the presence of malarial parasites and hypodermic injections of quinin in four hours removed all the symptoms.

Various Operative Technics for Dislocated Kidney and Indications for Their Application

DR. E. HARLAN, Cincinnati, reviewed the work and opinions of various surgeons on dislocated kidney and said that operative cases of dislocated kidney may be summed up as follows:

1. Cases presenting periodical crises: (a) chronic recurent headaches and other nervous surcharges; (b) gastrointestinal; (c) renal; (d) hepatic; (e) appendiceal; (f) various bladder and pelvic symptoms.

2. Pathologic kidney: (a) albuminuria (postural); (b) hydronephrosis (recurrent).

3. Insanity (Suckling).

4. Persistent lumbar dragging or colonic backache which is unrelieved by medicinal treatment or by the use of an abdominal elastic.

5. Dependent pathology: (a) appendiceal irritation, congestion or inflammation; (b) stricture or partial occlusion of the bowel or bile tract; (c) adhesions, (e) ptosis or ulcer of the stomach.

He tabulated the operative steps and measures which have been employed in fixation of the kidney from the time of the first operation by Dowell, of Galveston, Texas, in 1874, to the present, including a description of the technic as used by the most prominent authorities in this work at the present time, with a discussion of the merits of the several methods and their application. He ascribed the operation of posterior nephropexy to Hahn and presented the evolution of its many modifications with the probable cause or suggestion which give rise to each. Lateral nephropexy he said belongs to M. L. Harris of Chicago. He described anterior nephropexy as first exploited by himself as well as the modification of the latter by Bishop, of Manchester, England. He also gave a summary of the methods of operating for dislocated kidney.

He predicted that in the near future all posterior operative procedures and all operations intended to "fix" the kidney would become obsolete, and only those methods applied which relieve and replace an obstructed ureter, eliminate the pocket and support the kidney at its lower pole while making sufficient correction of a disabled peritoneum to prevent either the upper or lower pole of the kidney from protruding into the peritoneum or bowel.

(To be continued)

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA

Fifty-Ninth Annual Session, held in Philadelphia, Sept. 27-30, 1909

(Continued from page 1425)

SYMPOSIUM ON PULMONARY TUBERCULOSIS

The Early Diagnosis of Pulmonary Tuberculosis

DR. CHARLES H. MINER, Wilkes-Barre, Pa.: Of 272 members of 157 families of tuberculous patients attending the state tuberculosis dispensary No. 1, in Wilkes-Barre, 180 or 66 per cent. were found to be tuberculous. Of those examined for signs of obstructed respiration, 50 cases of adenoids and enlarged tonsils were found, and 35 of these patients have been operated on at the dispensary. To diagnose tuberculosis in its real incipience we must look for it during infancy and childhood, localized in the lungs and bronchial glands. The time for making an early diagnosis in adults is when renewed activity first takes place or there has been a reinfection from without.

The Roentgen-Ray Diagnosis of Pulmonary Tuberculosis

DR. CHARLES LESTER LEONARD, Philadelphia: This method of diagnosis is of distinct value in adding to and confirming the findings made by other methods of physical diagnosis and in obtaining mechanically a permanent record of the condition present. To obtain the necessary detail and to eliminate motion in the lungs, due to respiratory movements and the heart's pulsation, exposures of one-quarter of a second are essential. The method is valubale in the early stages of pulmonary tuberculosis in adding data by which the diagnosis is rendered certain. Localized empyemata can be differentiated from dilated and occluded bronchi and pyothorax and pneumothorax of slight extent can be found, while periodical thickenings and effusions, whether of tuberculous or other origin, are clearly seen. The relative height of the diaphragm is an unreliable index of the capacity of the lungs, since variations in the positions of the mediastinal viscera affect their relative capacity. This method has also shown that calcification of the sternocostal cartilages is a comparatively frequent accompaniment of pulmonary tuberculosis and may involve all the cartilages.

Tuberculosis of the Lungs Without Cough or Expectoration

DR. JOSEPH P. WALSH, Philadelphia: The paper is a report of 13 new cases and 442 cases from the literature of tuberculosis of the lungs without cough or expectoration, and general statistics on the frequency of this occurrence. Since tuberculosis of the lungs can be readily diagnosed, according to German and American statistics in at least 5 per cent. of cases before cough and expectoration begin, it is important not only not to wait for the discovery of tubercle bacilli in the expectoration, but also not even for cough or the expectoration itself.

The General Practitioner and the Incipient Case of Pulmonary Tuberculosis

DR. ARTHUR A. WATKINS, St. Benedict: A distressingly large number of physicians either hesitate to make a diagnosis of an early case or are unable to recognize it. In rural districts the number of tuberculous patients receiving modern treatment is incredibly small. The average family physician does not make a diagnosis until the physical signs are well advanced (Trudeau). Thus in incipient cases the patients are neglected and inadvertently imposed on. It is probable that the average family physician has from 25 to 100 cases of pulmonary tuberculosis among his patients.

The Prognosis in Advanced Pulmonary Tuberculosis

DR. WILLIAM B. STANTON, Philadelphia: The majority of patients who apply for treatment to the general practitioner are in advanced stages. Believing that good results are obtained only in incipient cases, the treatment is not pursued with the optimism and enthusiasm that should characterize it. Large left-sided lesions often admit of a guardedly favorable prognosis, while large right-sided lesions do not.

Discussion on Pulmonary Tuberculosis

DR. EDGAR M. GREEN, Easton: I believe that the fault in diagnosticating tuberculosis lies not so much in the lack of ability as in the lack of thorough examination. One thing of considerable help in the diagnosis of early cases is the knowledge that at times the bacilli are present in the urine when there is no expectoration. In one case there was occasional rise of temperature and a careful examination showed a very small focus in the upper portion of the left lung. There was absolutely no cough and there was no other symptom. I believe these cases in which there is no cough are much more frequent than we think.

DR. ARTHUR A. WATKINS, St. Benedict: I do not agree with Dr. Green that the fault is due to negligence of the profession. In a recent tuberculosis exhibit in our town, of eleven patients with tuberculosis the physicians who were present would admit that only one had the disease, and in this one the condition was far advanced and a cavity was present.

SYMPOSIUM ON THE CIRCULATION

Importance of Considering the Arterial and Venous Systems in Cardiac Diseases

DR. HOBART AMORY HARE, Philadelphia: Changes in the blood-vessels can be roughly divided for clinical purposes into three great classes, namely, far advanced atheromatous change with calcareous deposits and associated destructive disease of the intima; fibroid change in which the most important lesion is an arteriocapillary fibrosis; vascular spasm whereby the elasticity of the vascular walls is impaired almost as much as when an actual organic lesion is present. While I am aware of the fact that the morbid anatomist may criticise this classification, I hold the opinion that the class of cases characterized by calcareous change with breaking down of the intima is quite a different type of disease from that characterized primarily by spasm and later by spasm and arteriocapillary fibrosis. It is exceedingly rare, in my experience, to meet with marked calcareous change or brittleness in the arterial system of the well-to-do or upper class, and comparatively rare to find high tension due to spasm and fibrosis in the working classes. Hard manual labor does not cause the same arterial changes that are caused by hard mental labor and nervous stress. This is all the more interesting because of the abuse alcohol and syphilitic infection, the two great causes of arterial disease, may be considered to exert an equal or nearly equal influence in both classes. The deduction from these facts, so far as treatment is concerned, is that when calcareous change is well developed little can be done for the relief of the patient; whereas, in the latter type, a good deal can be done, the degree of good depending, of course, on the severity of the lesions in each instance. The recognition of the underlying vascular state, altered by actual illness, is of the utmost importance in prognosis, and of even greater value from the standpoint of therapeutics. Nor is it safe to be content with the examination of one vessel in determining the general arterial state. Aside from the chronic and persistent manifestations the importance of studying vascular changes in acute illnesses is of overwhelming importance. How futile it is to stimulate a heart which is pumping against a high pressure in narrowed and tortuous vessels unless we simultaneously relieve it of some of its labor by reducing that pressure by the nitrites. To give digitalis under these circumstances, in the face of high tension, is equivalent to giving a horse an extra meal and then doubling his load.

Blood-Pressure Past Middle Life in Diagnosis, Prognosis and Treatment

DR. JOSEPH H. BARACH, Pittsburg: This paper is based on blood-pressure studies with the Erlanger sphygmomanometer, in a series of over seventy males, and includes observations and deductions as to the value of the study of the blood-pressure past middle life in diagnosis, prognosis and treatment. A chart of blood-pressure readings in normal individuals from the age of 10 to 90 years showed that with the advance of life the blood-pressure seems to rise steadily. At the age of 40 the blood-pressure was 115, at 60 it was 135 and at 80 it was 150. With these figures as a medium normal, 20 mm. above or below represents the limit of the normal range under any circumstances; figures beyond that were always associated with something pathological. In treatment the greatest effect comes with the regulating of the patient's mode of living. As accessory measures the various depressor drugs are to be used cautiously.

Analysis of Sixty-two Cases Exhibiting the Xiphisternal Crunching Sound

DR. MYER SOLIS COHEN, Philadelphia: An analysis of 62 cases is presented showing this sound, which I described in 1903. While usually heard over the ensiform cartilage and the lower end of the gladiolus, the limits at which the sound was sometimes heard was the third rib, above the anterior axillary line and one and a half inches to the right of the sternum. The sound usually was increased when the patient leaned forward and diminished when he lay. In some cases it was loudest during inspiration; in others at the end of this act; in still others at the end of expiration. In many instances it was not affected by the breathing. The great majority of the cases were males, white, and between the ages of 20 and 70. All occupations were represented. In absence of autopsies, the nature of the sound is a matter merely of speculation. Apparently it has little significance. It is consequently important not to mistake the sound for a murmur or a pericardial friction.

Discussion on Circulatory Diseases

DR. JAMES M. ANDERS, Philadelphia: In these cases it is important to detect the degree of loss of elasticity of the arterial walls, the degree of sclerosis, and to carefully differentiate that for the sake of treatment from rise of blood-pressure. It is also important to estimate the loss of vasomotor tonus of the arterial walls. These arterial changes are commonly associated with cardiac affections, and it must be remembered that they may predominate in certain portions of the body. The indications for treatment must necessarily vary according to the particular changes. The great difficulty I find is that students and physicians are apt to overlook the fact that these changes are not necessarily disseminated throughout the body, but confined principally to certain portions of the economy. It is also important to detect the lack of elasticity in the veins and the degree of vasomotor tonus of the venous walls. As in the case of the arteries, so with the veins the impediment to the centripetal flow of the blood may be general, or it may be localized to certain portions of the body. The aspirating forces within the thorax must be carefully estimated in the given case. I refer especially to the inspiratory effort in breathing. I agree with Dr. Barach that a rise of blood-pressure is important for diagnosis and that it enables us to make a better prognosis. In arterial sclerosis affecting principally the smaller arteries a rise of blood-pressure is a most important early symptom.

DR. EDGAR M. GREEN: Dr. Hare spoke of the large element of nervousness in many of the cases of arteriosclerosis. I have been surprised to find that it might be said to be a temperamental condition. I have found that patients who do not relax are more subject to this disease than others. I have seen more patients with arteriosclerosis who did not have syphilis, or who were not alcoholics, than those with these conditions, and yet in almost all this certain neurotic condition was present in a marked degree.

DR. H. A. HARE: We must recognize that the term sclerosis is rather objectionable to modern pathologists; it is not sufficiently definite. It is true that in a large number of cases there is sclerosis in the sense that there is thickening of the vessels, either because of fibroid change or calcareous deposit. It is also true that in a large number of cases it is not so much actual fibrosis or sclerosis or atheromatous change as it is spasm. It is important to recognize the degree of spasm because in direct proportion to its recognition can we employ therapeutic measures with success and in direct proportion to the degree of sclerosis or actual fibrosis or atheroma can we employ remedies with failure. If there is one important point which we have learned from our studies of pathology in recent years it is that there is a limit to therapeutic usefulness.

(To be continued)

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Regular, Little Rock, November 9. Sec., Dr. F. T. Murphy, Brinkley.

CONNECTICUT: Homeopathic, New Haven, November 9. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave.

CONNECTICUT: Regular, City Hall, New Haven, November 9-10. Sec., Dr. Charles A. Tuttle, 196 York St.

FLORIDA: Jacksonville, November 10-11. Sec., Dr. J. D. Fernandez.

LOUISIANA: Homeopathic, New Orleans, November 1. Sec., Dr. Gayle Aiken, 1102 St. Charles Ave.

MAINE: Portland, November 9-10. Sec., Dr. Frank W. Searle, 806 Congress St.

MASSACHUSETTS: State House, Boston, November 9-11. Sec., Dr. E. B. Harvey, Room 159, State House.

NEBRASKA: Senate Chamber, State House, Lincoln, November 10-11. Sec., Dr. E. Arthur Carr, 141 South Twelfth St.

NEVADA: Carson City, November 1. Sec., Dr. S. L. Lee.

TEXAS: Levy Bldg., Greenville, November 9-11. Sec., Dr. M. E. Daniel, Honey Grove.

WEST VIRGINIA: Chancellor Hotel, Parkersburg, November 9-11. Sec., Dr. H. A. Barbee, Point Pleasant.

Texas Reciprocity Report

Dr. M. E. Daniel, secretary of the Texas State Board of Medical Examiners, sends us a report of those licensed by that board through reciprocity since Jan. 1, 1909. The following colleges were represented:

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
University of Southern California	(1908)	Illinois
Chicago Homeopathic Medical College	(1898)	Illinois
Illinois Medical College	(1901)	Indiana, (1903) Illinois
Chicago College of Medicine and Surgery	(1908)	Illinois
American College of Medicine and Surgery*	(1905)	Illinois
Northwestern University Med. School	(1904) (2, 1908)	Illinois
College of Physicians and Surgeons, Chicago	(1897)	West Virginia; (1903) (2, 1902) (1907) Illinois
Rush Medical College	(1881)	Minnesota; (1906) Illinois
Medical College of Indiana	(——)**	Illinois
University of Iowa, College of Medicine	(1902)	Iowa
Keokuk Medical College, College of Physicians and Surgeons	(1901) (1902)	Illinois; (1905) Indiana
Physio-Medical College of Indiana	(1890)	Michigan
Kentucky School of Med.	(1896)	W. Virginia; (1908) Kentucky
University of Louisville	(1889)	Kentucky; (1908) (1893) W. Virginia
Hosp. Coll. of Med., Louisville	(1897)	Illinois; (1904) Kentucky
Baltimore Medical College	(1897)	W. Virginia; (1903) Maryland
Johns Hopkins University	(1898)	Missouri
University of Maryland	(1906)	Maryland
College of Physicians and Surgeons, Baltimore	(1893)	Virginia; (1901) New Jersey
University of Michigan	(1903)	Indiana
University of Minnesota	(1893)	Minnesota
Barnes Medical College	(1898) (1904)	(1905) (1907) Missouri
Homeopathic Med. College of Missouri	(1883)	(1907) Missouri
University of Missouri	(1908)	Missouri
St. Louis College of Physicians and Surgeons	(1897)	Missouri
American Medical College, St. Louis	(1907)	Missouri
Kansas City Medical College	(1899)	Missouri
Eclectic Medical College of New York	(1900)	New Jersey
University of Nebraska	(1903)	Nebraska
Omaha Medical College	(1902)	Nebraska
Dartmouth Medical School	(1900)	New Hamp.
Eclectic Medical Institute, Cincinnati	(1906)	Ohio
Medical College of Ohio	(1885)	Nebraska
University of Pennsylvania	(1899)	W. Virginia; (1908) Maryland
Jefferson Medical College	(1907)	Maryland
Meharry Medical College	(1890)	Illinois
University of Tennessee	(1901)	Missouri
University of the South	(1905)	Maine
Vanderbilt University	(1900)	Missouri
University of Virginia	(1899)	Dist. Colum.
Milwaukee Medical College	(1905)	Wisconsin
University of Palermo, Italy	(1886)	Illinois

* Name changed to Chicago College of Medicine and Surgery in 1907.

** Year of graduation not given.

Nebraska August Report

Dr. E. Arthur Carr, secretary of the Nebraska State Board of Health, reports the written examination held at Lincoln, Aug. 10-11, 1909. The number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 7, of whom 6 passed and 1 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Northwestern Univ. Medical School	(1875) 75; (1909)	92
University of Maryland	(1909)	87.1
Woman's Medical College of Pennsylvania	(1908)	84.7
Jefferson Medical College	(1906) 79.5; (1909)	80
FAILED		
Barnes Medical College	(1909)	68.1

Missouri May and June Reports

Dr. J. A. B. Adcock, secretary of the Missouri State Board of Health, reports the written examinations held at Kansas City, May 17-19, and at St. Louis, June 7-9, 1909. The number of subjects examined in was 12; total number of questions asked, 90; percentage required to pass, 75.

At the examination held at Kansas City, May 17-19, the total number of candidates examined was 78, of whom 51 passed and 27 failed. The following colleges were represented:

College	Year Grad.	Total No. Exam'd.
PASSED		
Northwestern University Medical School	(1903)	1
College of Physicians and Surgeons, Chicago	(1908)	1
Drake University	(1889)	1
University of Kansas	(1908) (6, 1909)	7
University of Michigan	(1907)	1
University of Missouri	(1909)	2
St. Louis University	(1906)	1
Ensworth Medical College	(1909)	6
Univ. Med. Coll., Kansas City	(2, 1908) (17, 1909)	19
Barnes Medical College	(1909)	4
Washington University	(1908)	1
St. Louis College of Physicians and Surgeons	(1909)	3
Creighton Medical College	(1908)	1
Jefferson Medical College	(1908)	1
Vanderbilt University	(1909)	1
Meharry Medical College	(1909)	1
FAILED		
University of Kansas	(1906) (1908)	2
Maryland Medical College	(1902)	1
Detroit College of Medicine	(1908)	1
St. Louis College of P. & S.	(1901) (1908) (1909)	3
University Med. Coll. Kansas City	(3, 1908) (9, 1909)	12
Ensworth Medical College	(1908) (2, 1909)	3
Barnes Medical College	(1909)	1
Meharry Medical College	(1907) (2, 1908) (1909)	4

At the examination held at St. Louis, June 7-9, 1909, the total number of candidates examined was 144, of whom 111 passed and 33 failed. The following colleges were represented:

College	Year Grad.	Total No. Exam'd.
PASSED		
Georgia College of Electic Medicine and Surgery	(1904)	1
Rush Medical College	(1874) (2, 1908)	3
Tulane University of Louisiana	(1909)	1
St. Louis University	(1905) (1908) (32, 1909)	34
Washington University, St. Louis	(1908) (39, 1909)	40
University of Missouri	(1909)	1
Barnes Medical College	(1908) (1909)	20
St. Louis College of Physicians and Surgeons	(1909)	7
American Medical College	(1909)	2
Homeopathic Medical College of Missouri	(1909)	1
Missouri Medical College	(1890)	1
FAILED		
Howard University	(1907)	1
St. Louis College of Physicians and Surgeons	(1906) (1907) (2, 1908) (6, 1909)	10
Washington University	(1908) (2, 1909)	3
St. Louis University	(1908)	1
Barnes University	(2, 1908) (9, 1909)	11
Homeopathic Medical College of Missouri	(1909)	1
Lincoln Medical College	(1907)	1
Meharry Medical College	(1904) (1908) (1909)	3
University of Nashville	(1909)	1
Memphis Hospital Medical College	(1909)	1

New Hampshire July Report

Mr. H. C. Morrison, Regent of the New Hampshire State Board of Medical Examiners, reports the written examination held at Concord, July 2-3, 1909. The number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 30, of whom 19 passed and 11 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Medical School of Maine	(1909)	77.5
Baltimore Medical College	(1906) 77.8; (1908)	75
Harvard Medical School	(1908)	78
Tufts College Medical School	(1902) 88.3; (1905) 81.9; (1909) 75, 82.1.	
Boston University	(1899) 86; (1904)	82
Dartmouth Medical College	(1907) 75.6; (1908) 83.3; (1909) 87.3, 80.9.	78.8,
University and Bellevue Hospital Medical College	(1905)	87.6
University of the South	(1901)	77.8
University of Vermont	(1880)	83.4
McGill University, Canada	(1909)	85.8
FAILED		
Kentucky University	(1904)	50.6
Baltimore Medical College	(1908)	61.5
Maryland Medical College	(1905) 68.9; (1908)	63.9
Boston University	(1906)	73
Dartmouth Medical College	(1887) 59.3; (1908)	73
University of Vermont	(1908) 66.4, 66.8; (1909)	72.5
University of Marseilles, France	(1906)	68.4

West Virginia Report

Dr. H. A. Barbee, secretary of the West Virginia State Board of Health, reports the written examination held at Charleston, July 13-15, 1909. The number of subjects examined in was 9; total number of questions asked, 120; percentage required to pass, 80. The total number of candidates examined was 68, of whom 60 passed and 8 failed. The following colleges were represented:

PASSED College	Year Grad.	Per Cent.
George Washington University	(1907)	88
Chicago College of Medicine and Surgery	(1909)	84
Louisville and Hospital Medical College	(1908)	81
University of Louisville	(1907) 84; (1909) 81, 82, 82, 83, 83, 83, 85, 85, 85, 86, 88, 88, 90, 92.	
College of Physicians and Surgeons, Baltimore	(1902) 90; (1907) 91; (1908) 91; (1909) 83, 84, 85, 85, 85, 87, 89, 91, 92.	
Maryland Medical College	(1905) 88; (1909) 81, 84	
University of Maryland	(1909) 86, 87, 90	
Baltimore Medical College	(1909) 87, 89, 92	
Johns Hopkins University	(1908)	90
Starling-Ohio Medical College	(1909)	93
Eclectic Medical Institute, Cincinnati	(1909) 80, 82, 83	
Jefferson Medical College	(1909) 87, 91, 93	
Western Pennsylvania Medical College*	(1908)	83, 83
University of Pittsburg	(1909)	87, 89
Medico-Chirurgical College, Philadelphia	(1909)	81, 85
Tennessee Medical College	(1909)	81
University College of Medicine, Richmond	(1909)	90
University of Virginia	(1909)	86, 94
Medical College of Virginia, Richmond	(1909) 88, 89, 90	
FAILED		
University of Louisville	(1908) 74; (1909)	74, 74
Louisville and Hospital Medical College	(1908)	76
Maryland Medical College	(1909)	76
Eclectic Medical Institute, Cincinnati	(1909)	76
Chattanooga Medical College	(1909)	73, 73

* Now the University of Pittsburg, Medical Department.

South Dakota July Report

Dr. H. E. McNutt, secretary of the South Dakota State Board of Medical Examiners, reports the written examination held at Watertown, July 14-15, 1909. The number of subjects examined in was 12; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 49, of whom 34 passed and 15 failed. The following colleges were represented:

PASSED College	Year Grad.	Total No. Exam'd.
Columbian University, Washington, D. C.	(1904)	1
Rush Medical College	(1906) (1908) (1909)	3
Chicago College of Medicine and Surgery	(1909)	2
Northwestern University Medical School	(1903) (1907) (1908) (1909)	4
College of Physicians and Surgeons, Chicago	(1900) (1902) (1904) (1905) (1909)	5
University of Iowa	(1898) (1903) (5, 1909)	7
Sioux City College of Medicine	(1909)	1
Keokuk Medical College	(1900)	1
Tulane University of Louisiana	(1887)	1
University of Michigan	(1900)	1
University of Minnesota	(1905) (1907) (2, 1909)	4
Creighton Medical College	(1908)	1
University of Pennsylvania	(1906)	1
McGill University, Montreal	(1903)	1
University of Toronto, Ontario	(1907)	1
FAILED		
Rush Medical College	(1897)	1
Northwestern University Medical School	(1907)	1
Hahnemann Medical Coll. and Hosp., Chicago	(1901)	1
College of P. & S., Chicago	(1908)	1*
University of Iowa	(1908)	1
Sioux City College of Medicine	(1906) (1909)	2
Keokuk Med. Coll. of P. & S.	(1908)* (1908)	2
Washington University, St. Louis	(1909)	1
Barnes Medical College	(1905)** (1908)	2
St. Louis College of Physicians and Surgeons	(1906)	1*
Hahnemann Med. Coll. and Hosp., Philadelphia	(1907)	1
Queen's University, Canada	(1903)	1

* Second examination in 1909.
** Sixth examination.

Georgia August Report

Dr. E. R. Anthony, secretary of the Regular Board of Medical Examiners of Georgia, reports the written examination held at Atlanta, August 3-4, 1909. The number of subjects examined in was 10; total number of questions asked, 50; percentage required to pass, 80. The total number of candidates examined was 22, of whom 19 passed and 3 failed. The following colleges were represented:

PASSED College	Year Grad.	Per Cent.
Atlanta School of Medicine	(1909)	80, 86
Atlanta College of Physicians and Surgeons	(1909)	90
University of Maryland	(1908) 83; (1909)	84, 84
Columbia University, College of P. & S.	(1909)	95
Leonard School of Medicine	(1906) 82; (1908) 80; (1909)	82, 88
Jefferson Medical College	(1909)	83
Meharry Medical College	(1908) 80; (1909) 80, 80, 81	
Vanderbilt University	(1909)	90
Chattanooga Medical College	(1909)	83
Memphis Hospital Medical College	(1906)	80
FAILED		
Meharry Medical College	(1895) 77; (1908)	78
University of West Tennessee	(1909)	78

California August Report

Dr. Charles L. Tisdale, secretary of the Board of Medical Examiners, reports the written examination held at San Francisco, August 3-6, 1909. The number of subjects examined in was 10; total number of questions asked, 100: percentage required to pass, 75. The total number of candidates examined was 139, of whom 80 passed and 42 failed. The following colleges were represented:

PASSED College	Year Grad.	Per Cent.
Cooper Medical College	(1908) 75; (1909) 75.8, 76.4, 76.9, 77.4, 79.2, 79.3, 79.5, 80.1, 81.2, 84.3, 84.4, 84.8, 85.1, 85.2, 85.8, 87.2, 89.1.	
University of Southern California	(1905) 75.3; (1908) 80, 80.5, 86.5; (1909) 78.4, 79.6, 81.3, 81.4, 81.5, 83.2, 83.6, 85.5.	
University of California	(1909) 79.7, 83.2, 83.4, 84, 86.3	
Oakland Coll. of Med. and Surgery	(1909) 80.2, 82, 87.6	
College of Physicians and Surgeons, San Francisco	(1904) 76.5; (1907) 83.6; (1908) 78.2; (1909) 75.7, 83.2.	
Hahnemann Medical College of the Pacific	(1908) 77, 77.7; (1909) 76.3, 81.	
College of Physicians and Surgeons, Los Angeles	(1908)	77.2
University of Colorado	(1908)	81.3
Denver and Gross College of Medicine	(1908) 84; (1909)	79.7
Rush Medical College	(1906) 83.5; (1909)	86.6
Northwestern University Medical School	(1900) 83.8; (1908) 85.6; (1909) 83.	
Harvey Medical School	(1904)	75.4
Coll. of P. & S., Chicago	(1898) 81.7; (1908)	82.2
University of Iowa, College of Medicine	(1901)	83.1
American Medical Missionary College	(1902)	78.7
Johns Hopkins University	(1907)	81.5
Baltimore Medical College	(1907)	77.5
Harvard Medical School	(1894) 83.1; (1908)	82.5
Washington University, St. Louis	(1901)	82.1
University Medical College, Kansas City	(1909)	77
Barnes Medical College	(1909)	77
Creighton Medical College	(1904)	79.8
Dartmouth Medical School	(1899)	88
Cornell University Medical College	(1906)	83.1
University of Buffalo	(1896)	80.9
University of Pennsylvania	(1902) 82.4; (1907) 85.6; (1908) 79.1.	
Jefferson Medical College	(1901) 75.7; (1909)	81.3
McGill University, Montreal, Quebec	(1905) 84.9; (1908)	75.9
University of Bonn, Prussia, Germany	(1909)	80.3
FAILED		
College of Physicians and Surgeons, San Francisco	(1902) 58.1, 73; (1906) 63.8, 72.8; (1907) 62.5, 69.2.	
Hahnemann Medical College of the Pacific	(1908) 70.9, 71.8; (1909) 56.5, 62.8, 72.2.	
California Eclectic Medical College	(1909)	72.3
Cooper Medical College	(1903) 68.1; (1908)	69.2
University of Southern California	(1905) 60.6, 72.8; (1909) 70.8, 73.6.	
Medical College of Georgia	(1883)	65.4
Rush Medical College	(1885) 64.5; (1889)	*77.3
Northwestern University Medical School	(1898)	*76.4
College of Physicians and Surgeons, Chicago	(1909)	71.8
Hahnemann Medical Coll. and Hospital, Chicago	(1890)	60.5
University of Iowa, Coll. of Medicine	(1885) 82.1;* (1890)	68.8
Tufts College Medical School	(1907)	61.5
Harvard Medical School	(1898)	70.7
University of Maryland	(1903)	69.6
University of Michigan, Coll. of Med.	(1891) 63.1; (1908)	72.7
University of Minnesota	(1908)	68.3
New York Homeopathic Med. Coll. and Hospital	(1905)	53
Jefferson Medical College	(1893) 67.9; (1895) 49.8, 72.4	
Hahnemann Medical Coll. and Hosp., Philadelphia	(1909)	67.5
Medico-Chirurgical College, Philadelphia	(1901)	71.1
Vanderbilt University	(1909)	69
University of Vermont	(1908)	71.3
Trinity College, Dublin, Ireland	(1863)	*91.2
Tokyo Medical College, Japan	(1907)	56.3

* Five per cent. allowed for each ten years of practice.

National Conservation of Health as an Economic Measure.—Professor Irving Fisher, president of the American Health League, arguing for a national department of health, says in the New York *Christian Advocate:* The present interest in school hygiene augurs well for the future interest in and realization of public health. Perhaps an even greater good omen is found in the growing willingness of commercial establishments to conserve the vital machinery entrusted to their care as well as they conserve the machinery of iron and steel. A railway which works its engineers and signal men beyond the fatigue point reaps its just reward in its losses from collision. Incidentally the public loses life and limb. When insurance companies shall have introduced sanatoria, disseminated educational leaflets, and otherwise tried to promote public health from financial motives, we shall, from a practical point of view, have taken the greatest step forward yet achieved.

Medicolegal

Life Tables Cannot Be Used in Estimating Future Suffering—Largest Verdict

The Supreme Court of Iowa says, in the personal injury case of Canfield vs. C. R. I. & P. Railway Co. (121 N. W. R. 186), that counsel stated that plaintiff's expectancy of life was nearly 43 years, and based their argument in support of the verdict rendered in his favor for $49,000 on that proposition. As to the pecuniary injury to his estate by his injury, that was doubtless permissible, but in estimating his future suffering and the expenses he would be to, and all other matters which had to do with prospective damages, it was perfectly manifest that life tables could not be accepted as a basis. The statistics from which these were compiled were not based on the experience of men crippled as the plaintiff was, but on men in health, or, at least, on men who were not injured as the plaintiff was, and they afforded no criterion whatever as to his expectancy of life. If he was injured as badly as his surgeons said he was; was suffering as they claimed; was as nervous as they would have the court believe; had the exposed bone and running sores on his leg; and the liability to infection as they described, he was not likely to live many years. Indeed, his time, if he was injured as claimed, must of necessity be short. Of course, an operation might prolong his life, but if so, he would be relieved of his bodily suffering, although not his mental, due to his deformed condition. The court wishes to point out this fundamental fallacy underlying the argument made by counsel.

Going to the verdict of $49,000, the court says that this was undoubtedly one of the largest ever returned in a personal injury case. Indeed, it is the largest one of which the court has any knowledge, considering the position in life and earning powers of the party injured, who was an unskilled section hand 18 years of age, with an income of $435 a year, when injured. In the accident in which he was injured he was thrown something like 25 feet by a train, and struck on his head. His right knee was mashed, and the bone broken just above the knee. His left hip was broken, and left leg about the middle. His right arm was broken in three places, and the right shoulder hurt. His nose was cut, and there were cuts over the eye, over the eyebrow, and on the chin, and his scalp was torn off. He was entitled to compensation for present, past, and future pain and suffering, and to an amount sufficient to meet his past, present and future expenses caused by the injury. But, as already stated, he was not entitled to compensation for these on the theory that he would live to his full expectancy. This theory was plausibly argued before the court, but such an argument is without foundation, in that it proceeds on an entirely wrong basis. Again, in justification of the verdict, the members of the court of jury were asked to say what amount would induce them to voluntarily put themselves in a position to receive such injuries. Of course, the answer would be: No sum could be named which would be sufficient. This was another fallacy, but one which undoubtedly appealed to the trial jury. Twenty-five thousand dollars is the largest amount that the court would not deem an excessive award in this case.

Summary Power Necessary for Health Officers

The Supreme Court of Wisconsin, in State ex rel. Nowotny vs. City of Milwaukee (121 N. W. R. 658), says that a health officer who is expected to accomplish results must possess large powers and be endowed with the right to take summary action, which at times must trench closely on despotic rule. The public health cannot wait on the slow processes of a legislative body, or the leisurely deliberation of a court. Executive boards or officers, who can deal at once with the emergency under general principles laid down by the lawmaking body, must exist if the public health is to be preserved in cities.

There is nothing of greater importance relating to the food supply of a great city than that the milk sold should be pure and wholesome, and the common council of Milwaukee, realizing this fact, and realizing also that it was imperative that action should be quick and decisive if it is to be efficient, passed ordinances requiring, under penalties, that all milk sold must be unadulterated, must meet certain standards, and be obtained from healthy cows fed on wholesome feed, and further requiring that every milk vendor must obtain a license from the health commissioner, "which license may at any time be revoked by the commissioner of health for violation of the provisions hereof, or for any good or sufficient cause." The court is convinced that the council had power to pass the ordinance and vest the power of issuing and revoking licenses in the health commissioner by virtue of the power to "tax, regulate, and restrain" the "vendors of milk," and to "regulate and restrain the sale of milk," given to it by the city charter.

The requiring of licenses and the reserving of the power to revoke such licenses, in case of misconduct or violation of law, is well recognized as one of the most effective means of regulating and restraining a business that has yet been discovered, but the power of revocation would amount to little if it could not be vested in an executive officer or board with power to act quickly. The sale of infected milk for a single hour might produce an epidemic of typhoid fever which would sweep hundreds to the grave. The importance of reserving in some executive official the power to revoke can hardly be overestimated. Prosecutions to recover fines and penalties may drag their weary lengths along for weeks and months, and even then prove ineffective; but the revocation of the license remedies the evil and avoids the danger of the spreading of disease at once. It is regulation in the most effective sense. The court has no hesitation in holding that, when the city was given the power to license, restrain, and regulate the sale of milk, it also took power to revoke licenses, and that it might vest such power in the health commissioner, with the right to exercise the same summarily and even without notice.

Denial of Physical Examination on Affidavit of Attending Physician

The Supreme Court of Michigan says that the plaintiff in the personal injury case of Logan vs. Agricultural Society of Lenawee County (121 N. W. R. 485) claimed an injury to her spine and sexual organs. A notice was given to take her deposition at her home, on the ground that she was unable to attend the trial. After that notice was served, the defendant filed a petition asking an order that two physicians named be permitted to examine the plaintiff. In reply her physician certified that she was confined to bed as a result of the injury, that she was weak and extremely nervous, and that in his judgment the physical examination prayed for in the petition would be disastrous, and would have a tendency to greatly increase her nervous disorder and prevent her recovery. The trial court filed an opinion denying the application on the strength of the affidavit of her physician. The Supreme Court does not think that in this case the trial court abused its discretion, especially in view of the fact that a physician on behalf of the defendant was present when the plaintiff's deposition was taken, and testified on the trial, and that the defendant's other physician had examined the plaintiff at the time of her injury. All of the circumstances connected with the refusal were in evidence, and the trial court on this point instructed the jury that if they found that the defendant's physicians "were not given a fair and reasonable opportunity, both or one of them, to examine or see the plaintiff, and to make a modest and reasonable investigation for the purpose—and in good faith—of making an examination for the purpose of ascertaining her condition of health and the character and extent of her injuries, if any, then you should take this as against the plaintiff, and have the right to infer that such investigation would not be favorable to her claim in this case. Furthermore, you should consider carefully all the testimony in the case on that subject, and say whether she has refused at all times or not, and whether those refusals have been reasonable or not. And if not, you have a right to consider it as a circumstance against her to that extent; but if her reasons seem to be good and adequate in your judgment for doing as she has done under the circumstances, then, of course, it would not be considered by you as of any force or effect against her. You may consider all the evidence on that subject in determining what the real situation is." The Supreme Court sees no reason to disturb the ruling of the trial court.

Current Medical Literature

Titles marked with an asterisk (*) are abstracted below.

Medical Record, New York

October 16

1 *Construction of an Efficient and Economic Diet in Tuberculosis. H. M. King, Liberty, N. Y.
2 Early Diagnosis of Malignant Disease of the Larynx. W. F. Chappell, New York.
3 *Precocious Tertiary Syphilis; Case with Manifold Manifestations. H. F. L. Ziegel, New York.
4 *The Care of the Nursing Breasts—Their Development During Neurasthenic Puberty. G. E. Abbott, Pasadena, Cal.
5 Great Improvement in Advanced Cases of Pulmonary Tuberculosis Under Sanatorium Care. H. Greeley, Brooklyn.
6 Mastoiditis, Complicated by Purulent Leptomeningitis, Epidural Abscess, and Sinus Thrombosis. A. Braun, New York.

1. **Diet in Tuberculosis.**—According to King, the following standards are applicable to ambulant cases of comparatively quiescent tuberculosis under sanatorium treatment:

1. For young adult men of the working class on very light exercise from 2800 to 3200 calories, of which from 110 grams to 125 grams shall be protein.
2. For the same class on 5 or 6 hours vigorous exercise (sawing or chopping wood, working with shovels, pickaxes, barrows, etc.), from 3100 to 3600 calories, of which 125 grams to 140 grams shall be protein.
3. For women of this class 200 calories and approximately 10 grams protein may be deducted in each case.
4. Four young adult men, whose occupation has been more sedentary—*e. g.* clerks, bookkeepers, tailors, students, etc., on moderate exercise (walking from one to three hours daily), 2600 to 3000 calories, of which not over 115 grams need be protein.
5. For women of this class not to exceed 2500 calories and 100 grams protein.
6. For older patients, a slight reduction in calorific value and a considerably lower protein constituent are desirable in each case.
7. For the country dweller a somewhat larger bulk without increase in protein value is usually desirable, all other conditions being similar, than is the case with the patient from the city.

Diets constructed on these standards in two divisions of the Loomis Sanatorium during the past year have proved more satisfactory than any which have been previously employed. During the autumn and winter of 1905 and 1906 the standard was protein, 166 grams; fat, 214 grams; carbohydrates, 323 grams; calories, 3955. Patients seemed to do very well on this diet. Weight gains were satisfactory, but digestive disturbances were not uncommon.

3. **Precocious Tertiary Syphilis.**—A patient with syphilis which had not been systematically treated, fifteen months after infection began to exhibit tertiary manifestations which appeared in the following order: (1) Ulcer of the right leg; (2) papular syphilide of the scalp;; (3) deep ulcerations of tonsils and posterior pharyngeal wall; (4) stricture of the left nasal duct; (5) ulcers on forehead; (6) periostitis of nasal bones; (7) gumma of nasal septum, suppuration and perforation; (8) bursitis and synovitis; (9) periostitis of heads of tibiæ; (10) gummata of right testicle; (11) synarthrosis. The two noteworthy features of this case are the early appearance of the tertiary manifestations and their superficiality.

4. **Care of Nursing Breasts.**—Abbott shows how the breast is prevented from attaining normal development and thus secreting the normal amount of milk by the pressure of the ribs against the branches of the mammary artery as it passes out between the ribs. If the breasts are supported the circulation is normal and much more milk will be secreted. By lying on the nursing side while nursing the infant, the greatest amount of blood passes to the breast during lactation, and both the breasts should be nursed at each feeding, instead of alternately. Thus the breasts never hang flabby and will be firmer and of better shape, he asserts, after nursing is over.

New York Medical Journal

October 16

7 *Epilepsy in Its Relation to Menstrual Periods. A. Gordon, Philadelphia.
8 *Treatment of Acute Pneumonia in Infancy and Childhood. W. L. Carr, New York.
9 Prevalence of Venereal Disease Among Recently Arrived Immigrants. A. L. Wolbarst, New York.
10 Conditions Which Interfere with the Ventilation of the Nasal Chambers in Children. R. B. Scarlett, Philadelphia.
11 Criminal Simulation. F. A. McGuire and G. M. Parker, New York.
12 The Personal Side in the Treatment of Tuberculosis. H. D. King, New Orleans.
13 Infancy of the Practice of Medicine and Surgery. H. Pomeranz, New York.
14 Cases of Intestinal Obstruction. L. G. Hanley, Buffalo, N. Y.

7. **Epilepsy in Relation to Menstruation.**—A study of twenty-three cases has convinced Gordon of the undeniable relation of epileptic seizures to menstruation; absolute freedom from attacks in the intervals between menstrual periods; apparently perfect integrity of the ovaries and still occurrence of epileptic fits immediately before or during menstruation; inability to control the fits with the usual bromid treatment; good, and even excellent effect of thyroid extract. The thyroid extract was given between the menstrual periods and bromids without thyroid only a few days before menstruation.

8. **Lobar Pneumonia in Children.**—Carr claims that inasmuch as lobar pneumonia is a self-limited disease of short duration, it seldom demands more than nursing and care. Medicinal treatment is needed when symptoms indicative of weakness or complications arise, and to relieve pain or restlessness. Bronchopneumonia in its acute manifestation may require no more treatment than is mentioned for lobar pneumonia, but as it is a disease that is usually, even in acute cases, associated with depressed vitality or infection, stimulation by alcohol and other agents will be required. In all cases of bronchopneumonia careful nursing and attention to diet will save many lives and lessen the extent and severity of the disease.

Boston Medical and Surgical Journal

October 14

15 *Postoperative Acute Dilation of the Stomach. H. B. Smith, Boston.
16 Neoplasms of the Penis, Scrotum, Testicle and Cord. O. C. Smith, Hartford, Conn.
17 New Growths of the Prostate and Bladder. R. H. Greene, New York.
18 *Neoplasms of the Kidney and Ureter. J. B. Squier, New York.
19 Cystoscopy in New Growths of the Urinary System. L. Davis, Boston.

15. Abstracted in THE JOURNAL, July 17, 1909, p. 226.

18. **Neoplasms of the Kidney and Ureter.**—At St. Luke's Hospital, New York, for the past twelve years, there were, among 33,700 admissions, 325 cases of kidney disease (excluding nephritis), of which 24 were tumors, or 0.07 per cent. These 24 cases form the basis of Squier's article. In 13 of the tumor cases histologic diagnoses were made or confirmed. In 3 cases of cystic kidney and 1 of secondary carcinoma, the operative or bedside diagnosis could not be questioned. The other 7 are grouped as "tumors," irrespective of the clinical diagnosis. Pain was the first symptom in 7 patients; hematuria in 4, weakness in 5; tumor in 2; vomiting in 1, and pain and hematuria in 2. Thirteen patients died with recurrence: 10 at periods of one to twelve years; 1 patient had recurrence, but was living when reported; 1 died without recurrence five years after operation; 4 are living without recurrence (2 carcinomata, 2 hypernephromata). One reason of the high operative mortality is the rarity of early diagnosis. The tumor does not become palpable until it is very large. Radical removal at present offers the only chance for cure, the size of the tumor indicating the route for removal. The transperitoneal route permits better exploration of the opposite kidney and a more complete extirpation of the lymph nodes and other surrounding structures which may be involved in the growth.

Lancet-Clinic, Cincinnati

October 9

20 History of Human Anatomy. W. E. Lewis, Cincinnati.
21 Defective Children. L. M. Doll, Cincinnati.

Medical Fortnightly, St. Louis

September 25

22 Early Diagnosis and Surgical Treatment of Cancer of the Stomach. C. R. Dudley, Hannibal, Mo.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

October

23 Postoperative Separation of Laparotomy Wounds (Postoperative Prolapse of Intestines.) E. Ries, Chicago.
24 *Cervical Cesarean Section. H. F. Lewis, Chicago.
25 Vaginal Cesarean Section. W. M. Sprigg, Washington, D. C.
26 Use of Morphin and Scopolamin in Labor. J. Halpenny and C. H. Vrooman, Winnipeg, Canada.
27 Pancreatitis. T. Abbe, Washington, D. C.
28 Postpartum Hemorrhage. O. Hofmann, Kansas City.
29 *Epithelioma of the Vulva. E. A. Balloch, Washington, D. C.
30 The Toxemia of Pregnancy. F. H. Jackson, Houlton, Me.
31 Acute Inflammation of the Nasopharynx in Infants and Young Children. O. M. Schloss, New York.

24. **Cervical Cesarean Section.**—Cervical Cesarean section, according to Lewis, is a more difficult and longer operation than the older form; it requires deep dissection into extensive connective tissue spaces and admittedly in the probable presence of infection, it often involves considerable difficulty in extraction of the child and leaves the uterus in an abnormally fixed position. For clean cases, he says, it cannot replace the ordinary method; for cases of possible previous infection it offers no better chances than the classical operation with careful damming of the peritoneal cavity against the contents of the uterus and tight suturing of the uterine walls, while for cases of certain infection it cannot, he declares, replace craniotomy.

29. **Epithelioma of Vulva.**—Balloch reports two cases which show that irritating discharges from the uterus or vagina should not be neglected. Any chronic irritation is liable to cause cancer. Pruritus vulvæ calls for a careful search for its cause and its removal when found. The irritation incident to this disease may cause cancer of the vulva. The earlier the operation the better the chance of cure, and the more thorough the operation, the better the prognosis as to complete eradication of the disease. Even if the disease involves only one side, the glands on both sides should be removed and an effort made to determine the condition of the pelvic glands. Any involvement of the meatus urinarius or the urethra calls for careful examination of the urethra, supplemented by a cystoscopic examination.

Journal Indiana State Medical Association, Fort Wayne

September

32 The Physician as a Factor for Good or Evil. A. F. Knoefel, Linton.
33 Appendicitis. J. C. Fleming, Elkhart.
34 The Rôle the Gonococcus Plays in Childless Marriages. C. E. Barnett, Fort Wayne.
35 Medical History of Indiana (continued). G. W. H. Kemper, Muncie.

Annals of Surgery, Philadelphia

October

36 *Analytic and Statistic Review of 1,000 Cases of Head Injury (concluded). C. Phelps, New York.
37 Injuries of the Kidneys. A. B. Johnson, New York.
38 *Surgical Conception of Pancreatitis. C. N. Smith, Toledo, O.
39 Advantage of Simplicity in Operations for Appendicitis. C. N. Dowd, New York.
40 An Irrigating Sound of the Standard and Beniqué Type. V. C. Pedersen, New York.
41 Intravenous Local Anesthesia. J. M. Hitzrot, New York.
42 Modification of the Crile Transfusion Cannula. B. M. Bernheim, Baltimore.
43 *The Open-Seat Pelvic Binder. S. E. Newman, St. Louis.
44 *Silver Foil in Surgery. J. S. Lewis, New York.

36. **Head Injury.**—The analysis of 1000 cases of head injury observed by Phelps under similar conditions, could hardly fail to disclose some new facts in pathology and symptomatology, and to accentuate some others which were perhaps already known. The independence of the symptoms of cranial fracture and of intracranial lesions, the intervention of the sympathetic system in the production of symptoms of intracranial injury, and the relations of temperature to consciousness and in general to prognosis and diagnosis, are some of the more important of its disclosures; but the one fact of paramount importance which it demonstrates is that the essential lesion is the same in every class of intracranial injuries, and that it is a structural change in the cellular elements; that lacerations and hemorrhages are accidental, and not essential; that whatever influence these lesions may have in determining the more intimate pathologic condition they are but a part of a general contusion which may equally occur in their absence. This is the conclusion arrived at by Phelps, from the examination of every symptom in detail, focal as well as general, since in each instance many cases were found with no other gross lesion than a more or less well-pronounced circulatory derangement or even with no evident change at all.

38. **Surgical Conception of Pancreatitis.**—According to Smith, pancreatitis is of far more frequent occurrence than has been believed in the past. It is a disease progressive in its nature and tending to a fatal termination. With present methods it can be diagnosed without difficulty. It is, in the great majority of instances, secondary to and dependent on cholelithiasis or infection of the biliary tracts. It can be cured, or its progress stayed, by the early removal of its causes and the prevention of their recurrence. Its presence having been demonstrated, the immediate removal of its cause is imperative. Sodium phosphate, olive oil, neglect, delay, and optimistic indifference in the treatment of gallstones must give way to prompt, radical and efficient surgery.

43. **The Open-Seat Pelvic Binder.**—Newman describes pictorially a practical bandage for operations on the scrotum and testes and ilioinguinal region, which is said to possess the following advantages: The patient is not lifted; turning on the side is all that is required in applying the bandage. It is held in place by the spines of the iliac bones and does not tend to slip. The scrotum is not merely supported between the thighs but rests on the pubes. Urination is not interfered with; easy access to the rectum; defecation does not necessitate a change of the bandage. The bandage does not become stringy and see-saw the skin of the entire region. Inspection of the wound is easy and requires little more than the removal of a few safety-pins. After dressing the wound the same bandage may be reapplied; if the binder is soiled, it is laundered and re-used.

44. **Silver Foil in Surgery.**—Lewis says that on clean skin grafts the silver foil dressing is at its best and has replaced the older methods of wet dressings and gutta-percha, or the dry gauze dressings which present mechanical drawbacks. Under the foil the grafted skin remains fairly dry, as is the condition of normal skin. In plastic surgery, where cosmetic results are desirable, the slight secretion along the linear wounds passes through the crevices in the foil to be absorbed by the superimposed gauze, minimizing scab formation. In the usual clean wounds the possibility of infection from without is made more remote, especially in the groin, where the dressing may become wet with urine or slip and so expose the wound. In clean wounds, near a discharging wound, as in some secondary operations, the clean one may be protected against the other until union is established. The foil may be recommended on theoretical grounds to prevent subdural adhesions. In clean, rapidly granulating open wounds, the foil protects the delicate advancing margin of epithelium. Chronic ulcers, such as the varicose type, are not benefited. In the acute or painful stage of burns it is useless.

Journal of the Kansas Medical Society, Kansas City

September

45 Sporotrichal Infection. W. K. Trimble, Rosedale, and F. W. Shaw, Kansas City.
46 The Diagnostic Significance of Variations in the Hydrochloric Acidity of the Gastric Contents. F. A. Carmichael, Goodland.
47 Intussusception. A. Moberg, Kansas City.
48 Early Diagnosis of Pulmonary Tuberculosis. C. S. Kenney, Norcatur, Kan.

Texas State Journal of Medicine, Fort Worth

October

49 Compulsory Notifications in Tuberculosis: The Necessity and Feasibility. T. Y. Hull, San Antonio.
50 Tumors, Especially Fibroid Tumors. C. H. Harris, Fort Worth.
51 Case of Fibroma Molluscum. F. S. Littlejohn, Marshall.
52 Pathology of an Appendix and Ovary Removed 4 Hours After an Accident. M. A. Wood, Galveston.
53 Hernia, with Special Reference to its Traumatic Origin. B. Saunders, Fort Worth.
54 *Modified Halsted and Bassini Operation for Inguinal Hernia. W. A. Duringer, Fort Worth.
55 Cocain Anesthesia in 109 Cases of Hernia. W. W. Samuell, Dallas.
56 *The Angiotribe Method of Treating Hemorrhoids. S. P. Delaup, New Orleans, La.
57 Germicidal Effects of Biniodid of Mercury and Violet Rays. E. F. Cooke, Houston.
58 Development and Anatomy of the Lower End of the Rectum. J. E. Thompson, Galveston.
59 The One Universally Applicable Diagnostic Test for Tuberculosis and the Three Fundamental Factors of Treatment. B. Cornick, San Angelo.
60 Useful Anatomy in Surgery of the Pylorus. O. L. Norsworthy, Houston.
61 Tonsillectomy, A Hospital Operation. H. B. Decherd, Dallas.
62 Serious Troubles the Appendix May Cause. C. E. Cantrell and W. Cantrell, Greenville.

54. **Operation for Inguinal Hernia.**—The method devised by Duringer is really a modified Halsted and Bassini operation. The skin and superficial fascia are divided over the line of the inguinal canal. The external oblique aponeurosis is retracted and divided about one and one-half inches above and parallel with Poupart's ligament. The external oblique aponeurosis is dissected backward and upward. The lower segment is

dissected downward to expose the internal abdominal ring and the inguinal canal. The sac is liberated from the cord and opened. Excessive omentum is ligated and removed, and the stump and knuckle of bowel are returned into the abdominal cavity. The neck of the sac is liberated at the internal abdominal ring and ligated. The head of the threaded needle, with the same catgut, is passed through the upper angle of the wound, through the internal oblique and transversalis fascia and the stump of the sac drawn above the internal ring and anchored, making a so-called "bumper." This has the advantage of bringing healthy peritoneum in contact with the internal abdominal ring, giving it, necessarily, more strength. The cord is treated as the case demands. Duringer is not in the habit of removing veins.

In closing the abdominal anatomic layers, first, the cord is elevated by a gauze strip passed beneath it, and it is held out of the way. The curved fibers of the internal oblique and transversalis are stitched to the lower segment of the external oblique aponeurosis under the elevated cord. To prevent constriction and strangulation, Duringer seldom resorts to the outer stitch above and below the cord. Second, the superior segment of the external oblique aponeurosis is brought down over the cord, and over the line of union of the lower segment of the external oblique aponeurosis with the external oblique and transversalis, as low as possible, and attached by a mattress suture like the Mayo method of overlapping the aponeurosis for ventral hernia. Duringer then closes the superficial wound by a subcuticular catgut stitch. The advantage of this operation is said to be the maintenance of the exact anatomic relations of the abdominal wall.

56. **Angiotribe Method of Treating Hemorrhoids.**—The patient, having been previously prepared and the spinal injection made, is placed in Sims' position. The sphincter is gradually and thoroughly divulsed by making pressure with the thumb or fingers first in one direction and then in another, or with the Cook's speculum. The hemorrhoids are then exposed by everting the anus, and their number, size and location noted. The next step is also common to all methods, determining how many of the hemorrhoidal masses and what ones should be removed. This is best effected by firmly grasping each tumor with hemorrhoidal forceps and making traction so as to put the parts at its base well on the stretch. The angiotribe—Thuminn—is now adjusted; it will not only enclose the whole of the pile, but will reach up to the normal mucous membrane above, so that the vascular supply is wholly controlled. The portion of the pile that protrudes beyond the angiotribe is now cut off flush with the angiotribe by knife or scissors, just as in the cautery operation. The angiotribe is allowed to remain for 4 or 5 minutes, according to the size and condition of the pile. Pending the compression, the excised tumor, flush with the angiotribe, may be touched with a pledget of cotton saturated with pure carbolic acid. The angiotribe is then removed and reapplied as often as necessary; the most aggravated case never requiring more than four applications.

When the procedure has been completed there results a well and satisfactorily secured wound; the wound surfaces are in apposition. The perianal skin redundances have been in great part removed, and the traces of the operation then present to inspection two, three or more small compressed wound lines radiating from the anus, as the compressed stumps, when released, retain their linear form and return to the rectum in axial folds. These are gently returned within the sphincter and held in by a firm wedge-shaped gauze compress applied over the anus and firmly secured in place by a well-adjusted T-bandage. The patient is then placed in bed. The rectum should not be irrigated, nor any instrument introduced after the operation has been completed, from fear of tearing open the compressed wound. If the compression has been thorough, and if no dressing, packing or tubing of any kind is placed in the rectum, there will be little, if any, after-pain. The subsequent treatment does not differ from that commonly employed in any method of dealing with hemorrhoids.

Ohio State Medical Journal, Columbus

September

63 Bismuth and Other Paste Treatments in Suppurative Diseases of the Nose and Ear. J. C. Beck, Chicago.
64 Some Aspects of Angina Pectoris. F. Winders, Columbus.
65 Problems of the Obstetrician in Hydrocephalus. W. Gillespie, Cincinnati.
66 Indications for Cesarean Section. W. D. Porter, Cincinnati.
67 Psychotherapy. C. D. Mills, Marysville.
68 Method of Removing the Faucial Tonsil, with New Instruments. M. D. Stevenson, Akron.

American Journal of Medical Science, Philadelphia

October

69 *Exophthalmos and Other Eye Signs in Chronic Nephritis. L. F. Barker and F. M. Hanes, Baltimore.
70 *Nature of the Arteriosclerotic Process. J. G. Adami, Montreal.
71 *Conditions Affecting the Discharge of Food from the Stomach. C. A. Hedblom and W. B. Cannon, Boston.
72 *Relation of the Food-Stuffs to Alimentary Functions. L. B. Mendel, New Haven.
73 *Diet and Care of the Bowels in Typhoid. M. H. Fussell, Philadelphia.
74 Etiology of Loose Bowel Movements. A. D. Blackader, Montreal.
75 *Chronic Constipation Clinically Considered. L. M. Gompertz, New Haven.
76 *Location of the Cardiac Apex Beat. H. Dayton, New York.
77 *Orthodiagraphy in Study of Heart and Great Blood-vessels. T. A. Claytor and W. H. Merrill, Washington, D. C.
78 *Acute Leukemia with Special Reference to Auer's Bodies. R. Ottenberg, New York.
79 Volkmann's Contracture. N. Ginsburg, Philadelphia.
80 Appendicitis in Which Oxyuris Vermicularis was Found in the Appendix. A. P. C. Ashhurst, Philadelphia.

69. **Eye Signs in Chronic Nephritis.**—The authors direct attention to the frequent occurrence of exophthalmos in chronic nephritis, and advance the view that the exophthalmos of chronic nephritis is analogous to that of exophthalmic goiter, being but one of a number of evidences of a chronic systemic intoxication. Among 33 cases of chronic nephritis seen during the first four months of 1909, 16 (48.4 per cent.) showed exophthalmos. The exophthalmos varied greatly in degree, as did the gravity of the nephritic process in the various individuals. Those cases presenting evidences of serious intoxication (suburemic or uremic symptoms) most frequently showed exophthalmos and one or more of the allied ocular signs—anisocoria, von Graefe's, Moebius', or Stellwag's sign. Exophthalmos has been an obvious sign in all of the patients with chronic nephritis which have died in the Johns Hopkins Hospital since Jan. 1, 1909, seven in number.

The authors also observed that the cases of chronic nephritis showing albuminuric retinitis during this period have invariably shown exophthalmos, with one or more other ocular signs. Exophthalmos is but one of several ocular signs which are frequently present in chronic nephritis. Widening of the lid slits (Stellwag's sign), dissociation of the movements of the ball and lids (von Graefe's sign), and the break of convergence of the eyes (Moebius' sign), may be present in a maximum degree in chronic nephritis without the thyroid showing any apparent involvement. The authors believe that the conclusion lies very near, that in both diseases a chronic systemic intoxication affecting the autonomic system is the causative factor in the production of the ocular manifestations. In their series of 16 cases von Graefe's sign was positive in 11 (68.7 per cent.). Stellwag's was positive in 13 (81.3 per cent.), and Moebius' sign was positive in 7 (43.7 per cent.). The pupils were noted as unequal in 5 cases (31 per cent.), and albuminuric retinitis was observed in 8 cases (50 per cent.). Exophthalmos was associated with arterial hypertension (pressure above 160 mm.) in 12 of the 16 cases and in 2 cases a maximum degree of exophthalmos was associated with the maximum arterial tension shown by the patient; as the blood-pressure fell the eyes became less prominent. The authors are not of the opinion, however, that the exophthalmos is due to chronic hypertension. It may exist independently and certainly only a small percentage of cases having arterial hypertension show exophthalmos. It is far more reasonable to assume that the arterial hypertension and the eye signs mentioned are but evidences of poisoning by perhaps separate toxins. It is well known that uremia may develop in a patient whose blood-pressure is not increased, and it seems probable that in chronic renal insufficiency several toxins are present in the blood manifesting themselves in various ways.

70. **Nature of Arteriosclerotic Process.**—According to Adami, the dominant primary event in the arteriosclerotic process—syphilitic, senile or functional—is a localized or it may be a diffuse weakening of the arterial wall and especially of the

media. This induces increased strain on the remaining coats; and if this be not excessive, that strain leads more especially to connective tissue overgrowth and the development of the characteristic lesions of arteriosclerosis.

71. **Discharge of Food from the Stomach.**—The purpose of this investigation was to determine as accurately as possible under otherwise normal conditions, the influence of some of the commoner physical, chemical, and biologic factors on the movements of the stomach and on the rate at which it discharges food into the intestine. The method employed was that used by Cannon in studying the passage of different foodstuffs from the stomach. The food used, except when otherwise specified, was 25 c.c. of mashed potato, with which was mixed 5 grams of subnitrate of bismuth. The consistency, which depends on the amount of water added, was always as nearly uniform as could be judged by the eye and by manipulation. Full-grown normal cats, deprived of food for twenty-four hours previous to the experiment, served for observation. In all the experiments, except those with fluid food, the animals were placed on the holder and fed from a spoon with no special difficulty. At regular intervals after feeding, observations were made by means of a fluorescent screen illuminated by the *x*-rays; and the dark shadows made by the food were traced in outline on transparent paper laid over the screen. The aggregate length of these shadows measured the relative amount of food in the intestine at the different times of observation.

Hedblom and Cannon found that if carbohydrate food is thinned by adding water, there is, within limits, very little change in the rate of exit from the stomach; but adding water to protein food tends to make the discharge more rapid. When hard particles are present in the food the rate of outgo from the stomach is notably retarded. Coarse, branny food leaves the stomach slightly faster than similar foods of finer texture. The presence of gas in the stomach delays gastric discharge, an effect due to the gas preventing the walls of the stomach from exerting the normal mixing and propelling action on the food. No considerable variation from the normal rate of exit from the stomach is observed when the food is fed very hot or very cold. Food with approximately normal acidity leaves the stomach much faster than food which is hyperacid (1 per cent.), a result in harmony with other observations on the acid control of the pylorus. Feeding acid food is followed by deep and rapid peristalsis. Massage of the stomach, even when extensive, has very slight influence on the passage of food through the pylorus. Irritation of the colon (with croton oil) notably retards gastric discharge and delays the movements of food through the small intestine.

72, 73, 75. Abstracted in THE JOURNAL, June 5, 1909, pp. 1865, 1866.

76. **Location of Cardiac Apex Beat.**—Dayton claims that the point of maximum impulse frequently does not define the site of the cardiac apex. The point of maximum impulse, either visible or palpable, may be produced by a portion of the heart wall at some distance from the apex. Except in cases in which the visible and palpable impulses coincide, as they usually do with a normal heart, it is better to state simply that pulsation is visible in certain interspaces at a given distance from the median line. It is frequently impossible to determine the left border of the heart by percussion, on account of the changes in the resonance of the adjoining area due to large breasts or intrathoracic conditions, or when the apex is carried so far toward the left by hypertrophy or by displacement of the heart, as a whole, that percussion, unless extremely light, tends to bring out dulness of the lateral surface of the heart. Auscultation, as a means of locating the apex, is at best a makeshift in the event of the failure of the other methods. The most valuable clinical method of locating the cardiac apex is the palpation of its impulse when this can be detected in an interspace. The apex beat should be considered as the point farthest downward and to the left at which a distinct forward thrust of the heart can be felt. The clinical apex so located, being close to the anatomic apex, is of real value in estimating the size or relative position of the heart. Because of the influence of posture on the area of relative cardiac dulness, and the situation of the apex beat, it is advisable, for comparison with subsequent observations, to record whether the patient was examined in the erect or in the dorsal recumbent position.

77. **Orthodiagraphy of the Heart and Great Vessels.**—While orthodiagraphy should not be looked on in any way as a substitute for the other well-known methods of examination of the heart and great vessels, Claytor and Merrill say that it is at the same time a valuable aid. It can be used to make fairly accurate outlines and measurements of the heart and great vessels, thus enabling one to make comparisons with the normal or with subsequent diagrams of the same case. The use of the orthodiagraph may also serve to prove whether or not the size of the heart is influenced to any appreciable degree by a single effort of exertion or by a single therapeutic or gymnastic treatment.

78. **Acute Leukemia.**—Ottenberg observed that the rods described by Auer can be found in many cases of acute leukemia. They have never been found in any other disease, and there is no evidence that they are parasites.

Journal of South Carolina Medical Association, Florence

September

81 Influence of a Model Physician in Prevention and Cure of Tuberculosis. W. B. Young, Rock Hill.
82 Dermoid Cyst Successfully Removed by Ovariotomy. B. W. Tayor, Columbia.
83 Chloroform or Ether. W. Cheyne, Sumter.
84 Alkaline Treatment of Typhoid. W. T. Lander, Greenwood.
85 Treatment of Eclampsia by Cesarean Section. D. L. Maguire, Charleston.
86 Nephritis. W. L. Kneese, Lexington, S. C.
87 Prognosis and Treatment of Pellagra. C. H. Lavinder, U. S. P. H. and M.-H. S.
88 Functional Neuroses: Report of Case of Hysterical Amaurosis. L. C. Shecut, Orangeburg.

St. Paul Medical Journal

October

89 The Dismemberment of Traditional Hysteria (Pithiatism). J. Babinski, Paris, and C. E. Riggs, St. Paul.
90 *Tumors of the Breast with Special Reference to Obtaining Better Results in Malignant Cases. E. S. Judd, Rochester, Minn.
91 Eclampsia. L. W. Armstrong, Breckenridge, Minn.

90. **Tumors of the Breast.**—The point emphasized by Judd is that the surgeon can promise a definite cure in the majority of cases in which the patients present themselves for treatment on the appearance of first symptoms. As the technic develops, and physicians have a better knowledge of the extension of the growth of the tumor, they will be able to cure a larger percentage of the advanced cases. Therefore, an early operation, even though badly done, will effect more cures than will a perfect operation which is performed late. Furthermore, in order to get malignant cases early, it is necessary to remove all tumors as soon as they are discovered, as many of the doubtful and some of the supposedly benign cases will eventually prove to be malignant.

Long Island Medical Journal, Brooklyn

September

92 Pathology and Etiology of Arteriosclerosis. A. Murray, Brooklyn.
93 Symptoms and Physical Signs of Arteriosclerosis. R. Clark, Brooklyn.
94 Medical Treatment of Arteriosclerosis. G. R. Butler, Brooklyn.
95 Surgical Treatment of Lesions Due to Arteriosclerosis. P. M. Pilcher, Brooklyn.
96 Calorimetry in Infant-Feeding. W. D. Ludlum, Brooklyn.

Illinois Medical Journal, Springfield

October

97 Diagnostic Aids in Diseases of the Lung and Pleura. E. G. Beck, Chicago.
98 *Poisoning from Bismuth Subnitrate Vaselin Paste. V. C. David and J. R. Kauffman, Chicago.
99 *Surgical Treatment of Appendicitis. C. U. Collins, Peoria.
100 *The Pus Appendix. G. W. Green, Chicago.
101 *Subserous Appendectomy. E. M. Sala, Rock Island.
102 *When Shall We Advise Operation for Fibromata and Myomata of Uterus. J. C. Stremmel, Macomb.
103 *Treatment of Acute Insanity. S. Brown, Chicago.
104 Pyloric Stenosis in Infancy. F. X. Wails, Chicago.
105 The Needs of Crippled Children. J. Ridlon, Chicago.
106 *Rhythmic Inflation of Lungs in Resuscitation. J. A. Capps and D. D. Lewis, Chicago.
107 *Contemporary Workman's Compensation. W. H. Allport, Chicago.
108 Education of Children Affected with Ringworm and Favus of Scalp. J. N. Hyde, Chicago.
109 Surgery of the Brain and Its Coverings. C. C. Rogers, Chicago.

98. Abstracted in THE JOURNAL, June 12, 1909, pp. 1952, 1953. A similar article by these authors appeared in THE JOURNAL, March 27, 1909, p. 1035.

99. Abstracted in THE JOURNAL, June 5, 1909, p. 1879.

100. **The Pus Appendix.**—Green says that the definition of pus appendix is: Any pus inside or outside the appendix caused by the appendix. This will include most of the really acute and some of the chronic cases of appendicitis. The disease occurs at all ages, but is most common from 12 to 30. The three cardinal symptoms are pain, localized tenderness and resistance. The only treatment is removal of the cause, and the sooner this is done the better the patient's chance for a speedy recovery.

101. Abstracted in THE JOURNAL, Jan. 9, 1909, p. 159.

102. Abstracted in THE JOURNAL, June 12, 1909, p. 1953.

103. Published in the *Kentucky Medical Journal*, Oct. 1, 1909.

106. **Inflation of Lungs.**—In a series of eighteen experiments the following routine was carried out by Capps and Lewis: A dog was chloroformed until both respirations and heart beat ceased from one to three minutes. Then a hard rubber tube was slipped through the larynx into the trachea, and by means of a pump air was forced 15 to 20 times a minute into the lungs. A T-tube in the rubber connection provided for the escape of air between inflations and also controlled the pressure of air during inflation. No precaution was taken to filter the air. In addition to this artificial respiration rhythmical pressure over the heart was often practiced. In unresponsive cases 15 minims of a 1 to 1,000 solution of adrenalin were injected directly into the heart itself to provoke the muscular contractions. These efforts at resuscitation were successful in thirteen of the sixteen cases. One to three weeks later these animals, with one exception, were in good health. Postmortem examinations were then made and the lungs examined in gross and microscopically. Capillary hemorrhages were present in two cases. Half the cases showed a marginal emphysema of moderate degree. This seemed to cause no inconvenience to the animals. Pneumothorax was never present. Infection of the lungs or pleura did not occur in any case.

107. Published in *Chicago Medical Recorder*, August, 1909.

American Journal of Surgery, New York

October

110 Fibroid Degeneration of the Appendix. R. T. Morris, New York.
111 Where is the Appendix? G. I. Miller, Brooklyn.
112 *Inflamed Undescended Testicle Causing or Simulating Appendicitis. F. V. Cantwell, Trenton, N. J.
113 *Résumé of the Various Operative Technics for Dislocated Kidney, and the Application of Each. E. Harlan, Cincinnati.
114 *Surgical Treatment of Chronic Nephritis. J. F. Connors, New York.
115 New Methods of Testing the Internal Ear, Specially the Functionating Condition of the Semicircular Canal System; Differential Diagnostic Signs of Cerebellar Abscess and Tumor. J. McCoy, New York.
116 Urogenital Tuberculosis. G. M. Muren, New York.
117 Dilatation of the Female Urethra. T. B. Spence, Brooklyn.

112. **Undescended Testicle and Appendicitis.**—Cantwell reports four cases to show that one cause of undescended testicle is appendicitis in the fetus. The right testicle is more often retained than the left. In every one of these cases the left testicle was normal. The mildest inflammation might cause a cobweb adhesion, enough to stop the descent of this organ. Adhesions are frequently found in the peritoneum of the fetus. In the first three cases the position of the testicle just beneath the appendix was suggestive of the cause of the ailment.

113. An abstract of this article appears in the report of the Mississippi Valley Medical Association.

114. **Chronic Nephritis.**—Connors does think that any surgical treatment can do good in chronic Bright's disease, but in cases of uremia, anuria, or any other acute attack of poisoning consequent to arrest of kidney function, we can help by surgical interference, to be used only after medical aid has failed. If surgery is to be employed, nephrotomy is the operation of choice. It is his belief that decapsulation of the kidney in chronic nephritis is not a logical procedure.

Journal of Ophthalmology and Oto-Laryngology, Chicago

September

118 Diseases and Disturbances of the Eye Induced by Diseases of the Nose and Its Accessory Sinuses. D. W. Detwiler, El Paso, Tex.
119 Report of a Cilium in the Anterior Chamber. W. A. Barr, Chicago.
120 Recent Views Concerning the Tonsils. S. G. Higgins, Milwaukee.

California State Journal of Medicine, San Francisco

October

121 Predisposing Cause of Chronic Suppurative Otitis Media. G. P. Wintermute, Oakland.
122 Cerebral Complications of Middle-Ear Suppuration. L. C. Deane, San Francisco.
123 Eye Symptoms in Intracranial Complications Following Middle-Ear Suppuration. V. H. Hulen, San Francisco.
124 Treatment of Chronic Suppuration of the Middle-Ear. M. W. Fredrick, San Francisco.
125 Indications for Operation in Chronic Purulent Otitis Media. E. C. Sewall, San Francisco.
126 Different Operations for Chronic Suppuration of the Middle-Ear. H. Ellis, Los Angeles.
127 Momberg's Tubing Applied as a Tourniquet for Bloodless Surgery of the Pelvis. G. K. Herzog, San Francisco.
128 *Bone Transference. T. W. Huntington, San Francisco.
129 Combined Typhoid and Malarial Injection. H. Spiro, San Francisco.
130 Vaccines. P. Musbaumer, Oakland.
131 Mixed Infections in Pulmonary Tuberculosis: Their Vaccine Therapy. G. Martyn, Los Angeles.

128. **Bone Transference.**—In May, 1902, the patient, then 6 years of age, was treated for acute infection—osteomyelitis of the tibia. The middle portion of the shaft of the tibia was completely destroyed. The tibial defect was supplied by carrying the divided end of the middle portion of the fibula across to the tibia, countersinking it in the upper remaining fragment of the tibia, thereby securing union. The result of the first operation was highly satisfactory and the patient was allowed to walk, bearing his weight on the lower end of the fibula in its normal position. At this time there was manifest hypertrophy of the shaft of the fibula. Very soon, however, it was noted that there was a decided lateral bowing of the foot on the fibula, causing a deformity. Accordingly, six months after the first operation, the fibula was again divided at a point opposite the upper end of the lower segment of the tibia. With little difficulty the transference was completed. Again the wound healed kindly and rapid union was obtained. In six weeks, the child began to walk with little, if any limp, and in this respect the condition has improved, until, at the present time, he walks with a limp; runs as other boys do, plays baseball, football, and, in fact, is walking on a leg which is comparatively as useful as the other. The radiogram demonstrates that the fibula has assumed the dimensions of the normal tibia. Joint function at both knee and ankle remain perfect and there is but slight, if any, limitation of leg rotation.

Vermont Medical Monthly, Burlington

September 15

132 Mental Therapeutics. W. H. Pierce, Greenfield, Mass.
133 Traumatic Lumbago. C. A. Pease, Burlinton.
134 Report of the Surgical Service at the Mary Fletcher Hospital, Burlington, for Three Months. H. C. Tinkham, Burlington.
135 Non-Operative Sarcoma: A Treatment. F. L. Tosier, Washburn, Me.

Maryland Medical Journal, Baltimore

October

136 Surgery of the Thyroid Gland. R. Winslow, Braddock Heights.
137 Paracelsus. H. M. Cohen, Baltimore.

Journal Oklahoma State Medical Association, Muskogee

October

138 Diffuse Suppurative Peritonitis. A. L. Blesh, C. E. Lee and H. Reed, Oklahoma City.
139 Preventive Puerperal Septicemia. J. W. Scarborough, Russel.

Interstate Medical Journal, St. Louis

September

140 Toxemia of Pregnancy. H. M. Stowe, Chicago.
141 The Art of Refraction. J. Green, St. Louis.
142 Cerebellar Tumor, with Statistics of 30 Operations. H. Cushing, Baltimore.
143 Acute Prostatitis. H. Jacobson, St. Louis.

Journal of Nervous and Mental Disease, Lancaster, Pa.

October

144 *Juvenile General Paralysis. W. H. Hough, Washington, D. C.
145 *Hereditary Spastic Paraplegia; Report of Seven Cases. J. Punton, Kansas City, Mo.
146 *Thrombosis of the Cervical Anterior Median Spinal Artery: Syphilitic Acute Anterior Poliomyelitis. W. G. Spiller, Philadelphia.

144. **Juvenile General Paralysis.**—The case reported by Hough is considered one of interest not solely on account of its being a typical one both clinically and pathologically, but also because of the presence of the double nucleated Purkinje cells and the calcification of the cerebellar arteries in a girl 14 years of age.

145, 146. Abstracted in THE JOURNAL, July 31, 1909, pp. 405-406.

Archives of Ophthalmology, New York

September

147 Analyses of the Ash of the Normal and the Cataractous Lens. W. E. Burge, Baltimore.
148 Alterations in the Color Fields in Cases of Brain Tumor. J. Bordley and H. Cushing, Baltimore.
149 A Form of Retinal Disease, with Extensive Exudation. G. E. de Schweinitz, Philadelphia.
150 Neuroretinitis in Chlorosis. W. C. Posey, Philadelphia.
151 Metastatic Carcinoma of the Orbit. E. A. Shumway, Philadelphia.

Monthly Cyclopedia and Medical Bulletin, Philadelphia

September

152 The Milk Question from the Standpoint of the Pediatrician. J. H. McKee, Philadelphia.
153 The Therapeutic Action of Iodin and Mercury in Diseases Other Than Syphilis. H. A. Robbins, Washington, D. C.
154 Seasonal Influence on Suicide. W. F. R. Phillips, Washington, D. C.
155 Preventive Medicine in a Neglected Direction. B. C. Downing, Lexington, Mass.
156 Gastric Ulcer. J. V. Shoemaker, Philadelphia.
157 Headaches and Their Treatment. G. Rankin, London, Eng.

Kansas City Medical Index-Lancet

October

158 Surgical Treatment of Malignant Disease of the Rectum. J. M. Frankenburger, Kansas City, Mo.
159 Fractures of the Patella: Should They be Operated on? Why? When? How? A. P. Heineck, Chicago.
160 Use of Thyroid Extract in Treatment of Cretinism. J. E. Shaw, Mill Valley, Cal.
161 Requisites for the Treatment of Psychoneuroses. T. A. Williams, Washington, D. C.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

October 2

1 The Medical Library in Postgraduate Work. W. Osler.
2 Plea for a More Living Pathology. H. Sainsbury.
3 Case of Double Cervical Rib. R. Donaldson.
4 *Formalin-Iodin Catgut. F. J. Steward.
5 *Chronic Edema of the Face and Mucous Membranes. J. Adam.
6 Suppuration Treated by Vaccines. S. Mallanah.
7 Uncured Rice as a Cause of Beriberi. W. G. Ellis.
8 Operative Treatment of Obstructive Jaundice and Proper Selection of Cases. B. G. A. Moynihan.
9 Resection of Intestine. G. P. Newbolt.
10 Perforative Duodenal Ulcer. A. B. Mitchell.
11 Modern Methods in Treatment of Tuberculous Joints. W. Macewen.
12 *Unusual Case of Echinococcus (Hydatid) Cyst; Diagnosis and Treatment. G. A. Syme.
13 Operations for Liver and Lung Hydatids. F. D. Bird.
14 Four Cases of Removal of the Gasserian Ganglion. A. Blayney.
15 Scopolamin-Morphin Narcosis. C. Leedham-Green.
16 *Series of 212 Cases of Total Enucleation of Prostate. P. J. Freyer.
17 *Diagnosis of Cancer by Examination of the Blood. E. C. Hort.
18 Intestinal Anastomosis. G. H. Edington.
19 Diseases of the Lymphoid Tissue of the Conjunctiva. E. T. Collins.
20 Sarcoma of the Chorioid. J. Hinshelwood.
21 The Visual Acuity of School Children. W. B. I. Pollock.
22 Ophthalmia Neonatorum. S. Stephenson.
23 Malformed Cornea in Inherited Syphilis. E. Fuchs.
24 Treatment of Glaucoma by Trephining. F. Fergus.
25 Serodiagnosis of Syphilis. A. Fleming.
26 Diaphragm Test for Binocular Vision and Its Disorders. N. B. Harman.
27 A Sectomagraph with Binocular Fixation. J. H. Tomlinson.

4. **Formalin-Iodin Catgut.**—For about two and one-half years Steward has used formalin-iodin catgut. This is ordinary commercial formalin catgut, made up into short skeins (each skein containing about the right quantity for one operation), and steeped in a 1 per cent. solution of iodin in water for ten days. It is usually sterile in five days, but Steward steeps it for ten to be certain. At the commencement of the operation, skeins of the sizes required are picked out of the stock jars with sterile forceps, and placed in carbolic acid (1 in 20) till needed. This dissolves out the excess of iodin, which might possibly cause irritation. This gut is very strong, although after it has been kept for several months the very fine sizes become brittle. It is very resistant, and consequently there is no fear of too rapid absorption. It is beautifully smooth, uniform in diameter, inelastic and delightful to handle.

5. **Edema of the Face and Mucous Membranes.**—Adam reports 2 cases. In the first case the swelling began at the inner canthus of the left eye, and slowly increased, involving the cheek and the side of the nose; finally solid edema extended from eye to mouth, and from the nose over the whole cheek; it caused the patient much mental misery, owing to the disfigurement. There was no pain or tenderness, but occasionally a feeling of heat and a red flush; the edges of the nostrils, especially the left, were covered with thick hard crusts; the mucous membrane of both inferior turbinals was much thickened, that on the right showing a growth, like a small cherry, occluding the nostril. The tissue of the soft palate and uvula was much thickened; adenoids were still present. The treatment adopted was the removal of crusts in the nostrils with hydrogen peroxid, followed by application of silver nitrate dissolved in sweet spirits of niter, and by an ointment; reduction of turbinal hypertrophy, removal of adenoids and tip of uvula; application of mercurial ointment to cheek, overlaid with absorbent cotton and a firm elastic bandage; iodids and a thyroid preparation internally. After two months the edema disappeared and remained cured; there is still slight thickening of the soft palate and inferior turbinals.

The other patient had had chronic edema of the left cheek, upper lip and the left lobule of the nose for four years; had attended several hospitals and seen nine physicians. The edema, especially that of the upper lip, was very disfiguring. Crusts were found inside the left nostril, and an ulcerated groove down the center of the mucous surface of the upper lip, due to the sharp and carious edges of the everted central incisors. The treatment adopted was similar to that in the first case, with a similar result. Adam points out (1) that the disease is a local and not a constitutional one; (2) that, so far as the face is concerned, the primary lesion is probably always one of a mucous membrane, or more usually of a mucous orifice; (3) that the edema may affect the mucous membrane as well as the skin; (4) that the condition is curable.

12. **Unusual Cases of Echinococcus Cysts.**—Syme reports a number of rather unusual cases, in some of which the symptoms closely simulated those of gall-stones. Rupture of the cyst eventually led to the making of a correct diagnosis. In one case the cysts were located in the ilium; in another the cyst was in the muscles of the back, to one side of the spine, which communicated with a second cyst in the chest. In a third case, cysts were present among the spinal muscles, the vertebræ were eroded, and cysts had also formed between the laminæ and dura mater. Treatment consisted of enucleation of the cysts.

16. **Enucleation of the Prostate.**—In Freyer's series of 644 operations of enucleation of the prostate to date, there have been 48 octogenarians, ranging from 80 to 89 years, and 9 bordering on this period, aged 79, with 6 deaths. The average age of all his patients is 69 years, the prostates weighing from one-half ounce to 17 ounces, with an average of 2½ ounces. In connection with these 644 operations, there have been 39 deaths, in periods varying from six hours to thirty-seven days after operation, or a mortality of 6.05 per cent. The mortality has been gradually diminishing from 10 per cent. in the first 100 cases to 4.24 per cent. in the last 200. The causes of death were: Uremic symptoms due to chronic kidney disease, 16; heart failure, 6; septicemia, 2; shock, 4; exhaustion (kidneys much diseased), 1; mania (hereditary in one), 2; malignant disease of the liver, 2; heat stroke, 1; pneumonia, 1; acute bronchitis, 2; pulmonary embolism, 1; and cerebral hemorrhage with paralysis, 1. In 114 cases vesical calculi were removed at the same time; but all the deaths in these cases are accepted in connection with the prostatectomy, none being put down to the suprapubic lithotomy involved.

17. **Diagnosis of Cancer by Blood Examination.**—The finding of a normal antitryptic content in any cases in which the

question of malignancy has arisen appears to be of the greatest value in excluding a diagnosis of cancer. Unfortunately, the positive value of a negative diagnosis is not absolute, since the test was of no value in 6 cases out of 100 examined by Hort. The finding of a raised antitryptic content in any case in which the question of malignancy has arisen does not justify a positive diagnosis of the presence of cancer, since Hort found constantly a raised content in measles, scarlatina, intestinal tuberculosis, acute septicemia, some cases of leprosy and syphilis, and a similar rise will also almost certainly be found in many other infections, as well as in certain autoinfections, such as nephritis. In spite of this, however, a raised antitryptic content often appears to be of great value in deciding a doubtful opinion as to the presence of malignant disease, since the greatest incidence of cancer is at the period when the infective incidence (hetero-infection) is at the lowest.

In the absence of obvious infection, the possibility that a raised antitryptic content may sometimes be due to autoinfection from non-malignant cell aberration must constantly be borne in mind. A raised antitryptic content appears to be of the greatest value in distinguishing between an innocent neoplasm and a malignant one.

The Lancet, London

October 2

28 Medical Education. G. R. Murray.
29 St. George's Hospital and the Progress of Physic. H. D. Rolleston.
30 Theory of Vision. F. W. Edridge-Green.
31 *Pathology of Lead Poisoning. K. W. Goadby, and F. W. Goodbody.
32 Spinal Anesthesia in Children and Infants. H. T. Gray.

31. **Pathology of Lead Poisoning.**—Goadby and Goodbody are of the opinion that the essential and primary action of lead intoxication is the production of minute and microscopic hemorrhages in various portions of the body, including the nervous system; and that the clinical symptoms of lead palsy, and its good prognosis when treated early, are explainable by the presence of minute hemorrhages in the peripheral nerves. The presence of these minute hemorrhages in the nervous system also gives an explanation of the varied pathologic findings of many previous workers.

Medical Press and Circular, London

September 15

33 Diagnosis of Pelvic Tumors. A. Giles.
34 Congenital Heart Affections. G. Carpenter.
35 Psychic Treatment of Alcoholic Intemperance. J. D. Quackenbos.
36 *Hereditary Sudden Death. A. Gilbert and A. Baudouin.

36. **Hereditary Sudden Death.**—Gilbert and Baudouin discuss instances of sudden death in persons who may or may not have presented premonitory attacks of syncope, and which is due to an hereditary disposition. In these cases there is a sort of diathesis, the diathesis of sudden death. Sex appears to possess a certain influence. The authors' inquiry bore on fourteen persons who had died suddenly, and of this number eleven were men and three were women. The age at which the fatal syncope took place oscillated between 20 and 62 years. Speaking generally, the incidence of sudden death is earlier in the descendant than in the ancestor by whom the diathesis was transmitted. The underlying cause of the diathesis is heredity. In most of their cases this can only be traced 1 degree, from father to son. In 2 cases it was traced back 2 degrees. Independently of heredity, Gilbert and Baudouin's investigations brought to light many and various predisposing causes. Some of them, supervening only a short time before the final syncope, played the part of accidental causes. These, indeed, are anything but constant, for in several instances nothing whatever could be discovered. In one, a person free, so far as known, from disease and previously in excellent health, fell dead while out walking; similarly in the case of a man, who all at once felt queer, went to bed, asked for something hot, and expires forthwith.

In all are found traces of the same diathesis, and the authors suggest that this may help to explain many cases of death under chloroform. Patients suffering from very mild attacks of typhoid fever sometimes die unexpectedly, and here, again, it would be well to inquire into the family history. One of the most interesting points, possibly the most important of all, is the supervention of periodic attacks of syncope before the fatal one. In other cases the syncopal tendency was less marked, and in some it is distinctly stated that none had ever occurred. In these cases, apart from the morbid heredity and the habitual pallor of the patient, sometimes noted, there is little to note. Death may not be preceded by any premonitory signs. One patient fell dead in the street, another when out walking, and the body of a third was found in bed with the bedclothes undisturbed and a calm look on his face. Sometimes, however, the patient experiences a vague malaise, he groans, asks for something to drink, turns and twists himself about, but in all death is sudden, not the death that follows cerebral hemorrhage, but death due to arrest of the heart.

Journal of Tropical Medicine and Hygiene, London

September 1

37 *A Possible Natural Enemy to the Mosquito. J. M. Atkinson.
38 Filaria Philippinensis. G. C. Low.
39 Influence of Certain Biologic Factors on Migration of Mosquitoes. E. H. Ross.
40 Eruption Following Vaccination, From Its Clinical Aspect. G. A. P. Ross.
41 Recent Trypanosome Transmission Experiments. J. L. Todd.
42 Blackwater Fever. H. Hearsey.
43 Blackwater Fever in Cyprus. G. A. Williamson.
44 Sleeping Sickness H. Hearsey.

37. Published in the *Lancet*, Sept. 4, 1909.

Journal of Obstetrics and Gynecology of British Empire, London

September

45 *Treatment of Puerperal Convulsions. H. M. Little.
46 Complications and Difficulties in a Series of 250 Ovariotomies. J. M. M. Kerr.
47 Chorioepithelioma Developing in Connection with Birth of a Living Child. H. T. Hicks.
48 Torsion of the Internal Genitalia in the Presence of a Large Fibromyoma of the Uterus. A. Connell.
49 Ligature of the Ovarian Vessels as a Substitute for Oöphorectomy. J. W. Ballantyne.

45. **Puerperal Convulsions.**—Little says: Minimize the use of narcotics and anesthetics. Chloroform is rarely indicated for the control of convulsions, but should be used when general anesthesia is required for examination or delivery. 2. Immediate delivery is advisable, particularly when the child is viable. 3. In the majority of cases the onset of labor is more or less intimately associated with the onset of convulsions; *accouchement forcé*—preferably Harris' method followed by version—has given the best results. 4. Immediately after delivery, if not before, the stomach should be washed out, and several ounces of magnesium sulphate, well diluted with warm water, should be introduced through the tube. The patient should then be sweated by means of a hot-air bath or hot pack. 5. If convulsions recur after delivery, and particularly in postpartum eclampsia, the best results are obtained by withdrawing from 700 to 900 c.c. of blood from one of the veins of the forearm. 6. A large quantity of fluid (forced fluids) should be given for several days, and the amount so given should be tabulated carefully for comparison with the amount of fluid eliminated in the urine and stools. If the excretion is inadequate, repeat the sweating and purgation. Do not allow the patient to become waterlogged. 7. Careful records of ingestion and excretion should be kept for at least ten days, as the involution of the uterus has a marked effect on the general metabolism, particularly between the sixth and ninth days.

Australasian Medical Gazette, Sydney

August

50 Fibroid Tumor of the Uterus. J. A. G. Hamilton.
51 Uterine Prolapse. E. T. Thring.
52 Some Difficult Cases of Urinary Fistula in Woman: Prophylaxis and Treatment. R. Worrall.
53 Congenital Pyloric Stenosis. R. B. Wade.
54 Syphilis as a Cause of Insanity. S. H. Montgomery.
55 Chronic Gonorrhea in the Male. H. S Stacy.
56 *Treatment of Innominate Aneurisms by Distal Ligature—A Brasdorwardrop Operation. E. J. A. Haynes.
57 Ascites Complicating Hepatic Enlargement, Relieved by Intraperitoneal Injections of Adrenalin. T. Ambrose and N. J. Gerrard.
58 *Abnormality of the Gall-Bladder. H. C. Hinder.

56. **Treatment of Innominate Aneurisms.**—Haynes tied, simultaneously, the right common carotid artery and third part of the subclavian artery in a man, aged 42. The patient made an uninterrupted recovery, the wounds healing by first

intention. The radial pulse was fairly established at the wrist, the congestion and edema had gone from the arm, pain, thrill and pulsation had ceased in the tumor, the aneurismal bruit had gone, and the patient's cough was much improved. He expectorated blood-tinged mucus for a while, and the râles in the right chest were very few. Three months afterward there was no pain or difficulty in breathing, the tumor was decreasing in size, and there was no pulsation, thrill or bruit. The man had good use of his arm, and wanted permission to go to work, felling trees with an axe. He resumed his former hard work and suffered no inconvenience.

58. **Abnormality of Gall-Bladder.**—In one case Hinder found a septum which divided the gall-bladder into two unequal parts. This septum was thin and extended about half way up the fundus. It was placed transversely parallel to the under surface of the liver. There were stones in the main portion, which held direct communication with the cystic duct, and there was one small flat stone in the smaller division. In the second case no gall-bladder was to be found at first, but careful search disclosed a tiny gall-bladder about an inch long and as large as the terminal joint of the little finger. The wall was much thinner than that of an ordinary gall-bladder, and it contained several very small calculi. In the third case there was absolutely no sign of gall-bladder or gall-bladder fissure, merely a little dimple at the edge of the liver. There were no adhesions, but a falciform band of tissue about 1¼ inches in length, stretching from the liver to the peritoneum covering the bile duct, hepatic artery and portal vein. The common duct was clear. The pancreas was enlarged and somewhat hard. Both of these two men claimed to have rather poor digestion.

Annales de Gynécologie et d'Obstétrique, Paris

September, XXXVI, No. 9, pp. 513-576

59 Human Milk Drawn and Fed to Infants. (La tétée artificielle.) V. Wallich.
60 *Vomiting of Pregnancy. (Des vomissements de la gestation.) A. Pinard. Commenced in No. 7.

60. **Vomiting of Pregnancy.**—Pinard presents a historical sketch of the subject from Hippocrates to date. In his experience with 843 cases the primiparæ predominated; in 72 per cent. the vomiting commenced early and lasted for about three months, finishing before the end of the fourth month; in 28 per cent. the vomiting continued for five months and more, and in 5 per cent. throughout the entire pregnancy. In 19 out of 127 cases of hydatid mole vomiting occurred and always of exceptional severity. He never observed fever with the vomiting, but the pulse was frequently modified, and sometimes within wide limits in the same woman at different hours. When the pulse is over 100 the organism is suffering from loss of water, the urine becomes scanty and respiration is rapid and shallow. Constipation is the rule and there is extreme thirst. The tongue is very red, as if varnished, and, with or without hallucinations or tendency to syncope, coma ensues and the woman dies without ever having presented a higher temperature except during the last hours. In some cases the vomiting ceased two days before death. The uterus is generally rather smaller in these toxic vomiting cases, probably from the excessive loss of fluids, and the walls are flabby, sometimes leading to rejection of the idea of a pregnancy. Even when the uterus has been artificially evacuated and the organism resupplied with fluids, the acceleration of the pulse may persist for some time, after cessation of the vomiting, sometimes as long as for three weeks after the uterus has been emptied. He has noticed that these women lose weight as pregnancy progresses; this was noticeable in 42 per cent. of his cases. All these facts observed have convinced him that the vomiting is a sign of intoxication, and that, as a rule, the organism conquers this intoxication, but it may be so severe as to lead to a fatal outcome; the most constant, the most easily supervised and at the same time the most serious reaction is the acceleration of the pulse. He is inclined to assume that the pregnant organism generates some poison during the first half of the pregnancy, which has a special action on the vomiting center and causes, first, hypotension and then acceleration of the heart. Another poison seems to be generated during the last half of the pregnancy which acts also on the vomiting center, but induces hypertension and a tendency to convulsions. The liver is probably concerned in the production of these toxins, but the principal part, he believes, is played by the corpus luteum, which during pregnancy is larger than the hypophysis. In some cases the vomiting persists even after subsidence of the cause, from what he calls the *aptitude vomitive individuelle*, and in these cases suggestion may arrest the tendency to vomit. But when the intoxication still persists, suggestion alone is impotent, and treatment must be directed to eliminate the toxins, relieve the liver and kidney functioning, and prevent further autointoxication by restricting the patient to a milk-vegetable diet. So long as the pulse is under 100, the toxemia is not so excessive as to require interruption of the pregnancy, but he advises this at once when the pulse goes over 100. Delay may be fatal, or, at least, may expose the patient to the danger of paralysis. In 5 of his cases neuritis with atrophic paralysis developed later. Saline transfusion before, during and after the evacuation of the uterus is a useful adjuvant, and no food should be allowed until the woman can take considerable quantities of water by the mouth without vomiting. Water and milk should be all that is allowed until the pulse is permanently normal once more. He has witnessed serious symptoms develop after ingestion of an egg before the pulse rate was normal. In conclusion, he gives the details of 16 cases of uncontrollable vomiting in his experience since 1902, in which treatment was on these principles, the results justifying his assertions.

Annales de l'Institut Pasteur, Paris

August, XXIII, No. 8, pp. 585-663

61 *Immunization of Cattle Against Tuberculosis. (Recherches sur l'immunisation antituberculeuse.) H. Vallée.
62 Mechanism of Action of Arsenic Derivatives in Trypanosome Infection. (Mécanisme d'action des dérivés arsénicaux dans les trypanosomiases.) C. Levaditi.
63 *Rabies at Constantinople. (La rage et le traitement antirabique à Constantinople.) P. Remlinger.

61. **Immunization of Cattle Against Tuberculosis.**—Vallée here presents the conclusions of six years of extensive research in this line at the state veterinary college at Alfort. About 166 grown cattle and 500 calves were utilized in the experiments; the best results were obtained with intravenous inoculation of living tubercle bacilli of a much attenuated strain derived from a horse. The slight virulence of this strain and its complete absorption after inoculation are important factors in the results obtained. Inoculation with killed bacilli never produced satisfactory results. Ingestion of the cultures by the mouth conferred temporary immunity, the more complete the younger the animal. Vaccination by the mouth, as he calls this method, permitted the young cattle to resist for a year close contact with other cattle with open lung tuberculous lesions, and even after two years of this intimate intercourse with infected animals, they presented only insignificant or hidden lesions, while the control animals showed signs of severe and advanced tuberculosis. This vaccination by the mouth of the young cattle, he affirms, supplemented by the search for and elimination of all cattle with open tuberculosis, opens a prospect for a simple, safe and certain method of eradication of tuberculosis from cattle. The full details of his research will be published in the transactions of the recent International Veterinary Congress which was held at The Hague in September.

63. **Comparative Rarity of Rabies at Constantinople.**—Remlinger estimates the number of vagrant dogs in Constantinople as between 60,000 and 80,000, and yet, he states, rabies is comparatively rare. Only 49 dogs were brought to the public pound on account of rabies, in 1908, and of the 978 persons applying for treatment at the Ottoman Pasteur Institute in 1908 all but 157 of the patients came from regions outside of Constantinople and its suburbs. The rabies virus at Constantinople, however, seems to display unusual virulence when infection does occur. The dogs possess no natural immunity, but are distinguished by the fact that they keep strictly to their own territory, the dogs of one section of the city never venturing into another section, or, if they do, they are torn to pieces by the dogs of the section into which they intrude, while all live in peace when certain arbitrary boundaries are respected. On this account, when rabies does develop in one

section it never spreads to another. A further prophylactic factor is the instinctive avoidance by the dogs of one of their number who is sick with rabies. He is avoided and forced back into his lair if he attempts to come out. This instinctive prophylaxis among dogs is observed everywhere and explains why rabies does not spread more, but remains limited to the section where it first develops. At Constantinople the sections to which the dogs confine themselves are sometimes not more than 150 feet long, and generations succeed each other without ever passing beyond its boundaries. Remlinger estimates that fully 100 dogs die every day at Constantinople, but the birth-rate keeps pace with the mortality or exceeds it.

Presse Médicale, Paris

September 22, XVII, No. 76, pp. 665-672

64 *Urine Reaction for Diagnosis of Incipient Tuberculosis. (L'uroréaction, diagnostic précoce de la tuberculose.) F. Malmejac.
65 Apparatus for General Anesthesia with Ethyl Chlorid. P. Rosenthal and A. Berthelot.

September 25, No. 77, pp. 673-680

66 *Intoxication from Cheese. (Intoxications par le fromage.) A. Fonteyne.

64. **Reaction in Urine in Incipient Tuberculosis.**—Malmejac has been making a special study for ten years of the acidity of the urine in tuberculosis, having found that it differs from normal urine in respect to the persistence of the acidity. Urine from a healthy individual not taking medicine retains its acidity on standing not longer than from three to ten days, while urine from the tuberculous, under the same conditions, retains its acidity for twelve days at least and up to three months or more. Comparison with other affections that might be confused with tuberculosis confirms this practically exclusive persistence of the acid reaction in tuberculosis for an unusually long period. The reaction persists longer, also, the more advanced the tuberculous process, averaging seventeen days for tuberculosis of the first degree, twenty-six for the second, and forty for the third. The acidity may be determined by adding 3 drops of a 1 per cent. solution of phenolphthalein to 10 c.c. of urine diluted with 50 c.c. of distilled water, strictly neutral, in a dish with a flat bottom. The titration is done with decinormal solution of sodium hydrate; the findings represent the proportion of sulphuric acid to the liter. An increase in the acidity of the urine, on standing, is frequently observed in diabetes, but a prompt decrease in the acidity of normal urine is the rule, and the durable level plateau of the curve in tuberculosis is a characteristic phenomenon observed in 97 per cent. of all the tuberculous individuals he has examined, often even before clinical signs of the disease became apparent.

66. **Intoxication from Cheese.**—Fonteyne reports an epidemic of gastrointestinal disturbances affecting forty persons who had partaken of a certain cheese, and bacteriologic and experimental research disclosed a special cocco-bacillus, not resembling the paratyphoid group.

Semaine Médicale, Paris

September 29, XXIX, No. 39, pp. 457-468

67 *Determination of Primary Focus in Generalized Cancer. (Détermination du foyer primitif dans les tumeurs malignes généralisées.) B. Huguenin.

67. **Determination of Primary Focus with Generalized Malignant Disease.**—Huguenin has witnessed a number of cases in which the metastatic tumors rapidly grew to large proportions while the primary growth was small. In one case the primary tumor on the back of the hand was no larger than a nut, while the metastatic tumor in the axilla rapidly grew to the size of an orange. The discovery of an embolus in the center of a tumor confirms its secondary nature; it is frequently possible to locate the primary growth by the structure of the cells in the embolus. In a recent case of this kind he declared that the carcinoma in the bone must be secondary to a primary tumor in the liver or suprarenals, and autopsy later revealed it in the liver. When a carcinoma develops in an organ not containing epithelium, it is wisest to assume that it is a secondary growth. The same applies to a cancer in which the epithelial cells do not correspond to the cells of this kind normally in the region. A crater-like depression is characteristic of primary cancer in the stomach, but cancer of the liver never presents this form, he says, unless it is secondary. A primary liver cancer is knobby; there is no depression in the center and the nodule may have a diameter of 10 or 20 cm., while the secondary carcinoma rarely exceeds 4 cm. in diameter. Carcinoma in other organs, especially the esophagus, is primary when it presents the crater form; the secondary growth generally develops underneath the mucosa and merely lifts it up without forming part of it.

Archiv für Gynaekologie, Berlin

LXXXIX, No. 1, pp. 1-243. Last Indexed September 11, p. 901

68 Metastatic Appendicitis and Involvement of the Adnexa. (Secundäre Skolekoiditis bei Angina; Mitbetheiligung der Adnexe.) H. Offergeld.
69 *The Momburg Belt Constriction to Arrest Hemorrhage. (Weitere Erfahrungen mit der "Momburg'schen Blutleere" in Geburtshülfe und Gynäkologie.) W. Sigwart.
70 Eclampsia Not Dependent on the Parathyroids. L. Seitz.
71 Colloid Adenocarcinoma of Cervix. (Schleimkrebs des Collum uteri.) J. W. Miller.
72 An Endochorial Amniotic Cyst. E. v. Graff.
73 True Melena in New-Born Infant. (Melaena vera neonatorum.) v. Rundstedt.
74 *Puerperal Autogenic Infection. (Zur Frage der Selbstinfection.) A. Schmidt.
75 *Influence of Spinal Anesthesia on Contractions of Uterus in Labor. (Untersuchungen über den Einfluss der lumbalen Stovain-Anästhesie auf die Wehenthätigkeit des menschlichen Uterus bei der physiologischen Geburt.) F. Westermark.
76 *Physiology of the Amniotic Fluid. (Weitere experimentelle Beiträge zur Physiologie des Fruchtwassers.) B. Wolff.
77 *Operative Treatment of Puerperal Peritonitis and Thrombophlebitis. G. Leopold.

69. **Hemostasis with Constricting Belt in Obstetrics.**—Sigwart writes from Bumm's clinic at Berlin to report some new cases, bringing the total to 24, in which the Momburg technic was applied to arrest threatening postpartum hemorrhage. The experiences were extremely favorable, and there were no serious by-effects of any kind; in several cases the women bore the constriction without general anesthesia. The rubber tube is wound two or three times around the waist and drawn tighter until the hemorrhage stops. The simplicity of the procedure and its immediate effect commend it, he asserts, for general adoption in obstetrics, for which it is better adapted than for gynecology. He declares that clinical observation and post-mortem findings have confirmed the harmlessness of the procedure, and as no special skill is required for it, he advocates its use in urgent cases while awaiting the arrival of the physician. As the only failure consists in not drawing the belt tight enough, he gives a picture to counteract the natural dread of this procedure, showing a woman with the belt applied arresting postpartum hemorrhage. (The technic was mentioned in THE JOURNAL, Nov. 14, 1908, page 1742.)

74. **Autogenic Puerperal Infection.**—In Schmidt's bacteriologic examination of 100 cases before and after childbirth, virulent streptococci were not found in any instance before delivery, and yet of the patients 20 had a febrile puerperium.

75. **Spinal Anesthesia and Its Influence on Labor.**—Westermark has been continuing his research on the influence of anesthetics on labor, and here reports 19 cases in which 0.08 gm. stovain was injected for spinal anesthesia during labor. The effect revealed some interesting physiologic facts, but did not suggest that the technic was as suitable for obstetric purposes as chloroform, which is much simpler to use and less dangerous.

76. **Physiology of the Amniotic Fluid.**—Wolff gives the details of a long series of experiments which have established beyond question, he thinks, that the amniotic fluid is not a product of the mother. The fetus is the exclusive and direct source of the amniotic fluid.

77. **Operative Treatment of Puerperal Peritonitis and Phlebitis.**—Leopold has previously reported 16 cases of acute puerperal peritonitis in which prompt operation saved twelve of the women, and 2 cases of thrombophlebitis in which one of the patients was saved by ligation of the ovarian veins, the third day after the first chills. He here reports another case of acute peritonitis in which the patient was saved by suturing a ruptured point in the small intestine, the day before delivery. The case confirms the advantages of laparotomy for peritonitis if not more than 2 days old, while the resistance is still good and before the intoxication is too severe. In 2 other cases, purulent thrombophlebitis after delivery was treated by ligation of the ovarian veins, but in both the intervention came too late. In one the source of the pyemia was evidently the suppurated site of the placenta, and early panhysterectomy might possibly have saved the patient. In the second case gonococci had evidently penetrated from the vagina into the veins of the paravaginal tissue, with inflammation of the veins in the right groin and secondary thrombosis of the iliac veins and vena cava. The mistake was made that the vein in the groin was not incised and evacuated when its swollen condition first attracted attention, the fifth or sixth day. The reliance on expectant treatment proved vain. When puerperal thrombosis is accompanied by a rising temperature or a pulse curve which slowly subsides again, the prognosis is favorable, but not when there are remittent high fever and chills. This indicates always some localized pus focus. If the pus cannot escape outward, or if it is in an ovarian or iliac vein, it empties into the vein above, and this must be prevented at all hazards; this is possible only by early search for and evacuation of the pus focus. The thrombi may pass into the vena cava early and the germs penetrate the vessel wall, the resulting inflammatory edema soldering veins and arteries together. In the last case this was responsible for his mistaking the hypogastric artery for the thrombosed vein. The attempt to ligate the iliac vein proved impossible, as it could not be separated from the artery. The lesson from his 21 cases, he says, is to operate and operate early, but never too late.

Berliner klinische Wochenschrift

September 20, XLVI, No. 38, pp. 1717-1756

78 *Tuberculin Treatment of Pulmonary Tuberculosis. P. K. Pel.
79 Combination of Iron and Tuberculin. (Klinische Erfahrungen mit Eisentuberkulin.) W. Schultz.
80 Complement-Binding Reaction in Serum and Effusions of the Tuberculous. (Studien über das Blutserum der Tuberkulösen und die Exsudate der serösen Höhlen mittelst Komplementbindung.) C. Frugoni.
81 Saucepan Sliver in Appendix. (Abgesprungenes Kasserollestuck im Wurmfortsatz einer Bruchgeschwulst.) F. Zorn.
82 Nature of Pancreatic Diabetes. (Wesen des Pankreasdiabetes.) H. Hinselmann.
83 *Arteriosclerotic Variations in Blood-Pressure in Single Individual. (Ueber arteriosclerotische Blutdruckunterschiede beim einzelnen Menschen.) H. Engel.
84 History of Ether Anesthesia. (Die Geschichte der Aethernarkose.) M. Bohm.
85 Seasickness. (Seekrankheit.) G. Thoma.
86 Injuries of Posterior Vagina. (Isolierte Kohabitationsverletzungen des hinteren Scheidengewölbes.) G. Bamber.

78. **Tuberculin Treatment of Pulmonary Tuberculosis.**—Pel read this article at the recent international medical congress, concluding his remarks with the statement that tuberculin is still in the period of trial. He has been unable to acquire much enthusiasm for it. There are so many unaccountable by-effects, such as headache, fever, insomnia, rheumatoid pains, loss of appetite and weight, acceleration of the pulse and general depression, while acute exacerbations or complications of the tuberculous process may be encountered, as also an individual hypersusceptibility to tuberculin. The course of treatment is so long, so complicated, the indications are so restricted and there are so many contraindications, that he declares that failure to institute tuberculin treatment is not a sin of omission, for the present. The clinics, hospitals and sanatoriums should make a point of comparative and critical study of tuberculin treatment to place it on a solid basis.

83. **Early Sign of Arteriosclerosis.**—Engel calls attention to the differential importance of variations in the blood pressure in different vascular areas. The systolic blood pressure is the expression of the effort of the heart plus the elasticity of the vessels. If there is mechanical obstruction in the vessels, the blood pressure in the area will be proportionately reduced. A circumscribed arteriosclerotic process causes the blood pressure in the region to become much lower than in the area on the other side. The variation is slight, not more than from 5 to 15 mm. mercury, and it may not be evident to the finger, but it can be readily measured with the tonometer. The difference has diagnostic importance only when it is found constant on repeated examination. Consequently, if a constant difference of 5 mm. is found in the pressure in the right and left arm, for instance, this is an essential aid for the diagnosis of arteriosclerosis. This finding is also important for differentiating primary nephritis from arteriosclerosis. In nephritis the cause of the increased blood pressure acts uniformly throughout the body, and local disturbances do not occur in single vascular areas, as in case of arteriosclerotic lesions in the walls of the vessels.

Deutsche medizinische Wochenschrift, Berlin

September 23, XXXV, No. 38, pp. 1641-1680

87 *Revised Conception of Scrofula. (Der gegenwärtige Stand der Lehre von der Skrofulose.) T. Escherich.
88 *Puncture of the Corpus Callosum for Hydrocephalus. (Behandlung des Hydrocephalus durch den Balkenstich.) F. v. Bramann.
89 *Localization of Motor Aphasia. (Allgemeine Betrachtungen über die Lokalisation der motorischen Aphasie.) C. v. Monakow. Commenced in No. 37.
90 Importance of Special Sanatorium for Industrial Accidents. (In welchen Heilanstalten wird die Behandlung von Unfallverletzten am zweckmässigsten durchgeführt?) O. Vulpius.
91 *Negative Experiences to Date with Cultivated Spirochetes. (Bisherige Erfahrungen mit der gezüchteten Spirochaete pallida.) J. Schereschewsky.
92 *Faradization of Bladder in Treatment of Tabetic Ataxia. Herzog.
93 Study of Invagination of the Bowel. (Darminvagination.) C. Riedel.
94 Biology of Colostrum. J. Bauer.
95 Case for Tests of Sense of Smell. (Kompendiöser quantitativer Olfaktometer zu klinischen Zwecken.) W. Sternberg.

87. **Scrofula.**—Escherich remarks that the cutaneous Pirquet tuberculin reaction and scrofulous skin lesions—scrofulides—are influenced alike by injections of tuberculin. This cutaneous test has shown the connection between the non-bacillary manifestations of scrofula and tuberculosis. The true cause of scrofulous changes in the skin is the hypersensitiveness of the skin and mucosæ resulting from the presence of the antibody, that is, the tuberculous "allergy." The difference between the toxic and the bacillary symptoms of tuberculosis has long been recognized, and is a reason for maintaining the term "scrofula" or "scrofulide" to express the tuberculo-toxic changes in the skin. The term "scrofula" he would retain for those cases of tuberculosis in which the focus is latent and there are merely the lesions known as "scrofulides." If signs of a manifest bacillary focus are present also, he would call this "scrofulo-tuberculosis." Pure scrofula is the most harmless form of tuberculosis in children. A complete cure is the rule, and it confers relative protection against later infection. This also applies to some extent to scrofulo-tuberculosis. It may be obstinate, but it is generally benign. The discovery of the typical scrofulides is thus important for both prognosis and treatment. He discusses the connection between the status lymphaticus and scrofula, accepting some congenital constitutional anomaly, manifested by the former, as the basis for the development of the scrofulous symptoms in the course of tuberculosis. The article, which was presented as an address at the recent international medical congress, emphasized the importance of tuberculin in treatment of scrofula, to supplement the usual measures.

88. **Treatment of Hydrocephalus by Puncture of the Corpus Callosum.**—Bramann has applied this method of treatment in 22 cases, including 8 of hydrocephalus. He aims to relieve the pressure on the brain by perforation of the corpus callosum to establish a broad communication between the fluid in the ventricle and the subdural space of the brain and spinal cord. He assumes that the active flow of the fluid between the ventricle and subdural space will prevent the opening from growing up. For children it is unnecessary to trephine, as a curved cannula can be inserted through a small incision in the dura, close to the sinus, after incising the skin about the middle of the anterior fontanelle, 1 cm. to the right of the median line. The cannula is then pushed in between the wall of the sinus

and the surface of the brain toward the median line until the tip of the cannula reaches the falx and glides along this to the corpus callosum, through which it is pushed. After allowing escape of fluid, which is generally under high pressure, the cannula is worked to and fro until the hole is sufficiently enlarged to ensure its remaining open; then the cannula is removed. In his 8 cases of hydrocephalus the improvement was marked, the fontanelle no longer protuding, but sinking in after the intervention, showing the reduction in pressure. All the children were improved in general health and became less apathetic. Among the cases reported in detail was that of a boy of 10, whose head measured 65 cm.; improvement has been progressive during the year since the operation. The results attained to date confirm the advantage of this continuous drainage by puncture of the corpus callosum in every case of hydrocephalus, even in infants, rebellious to internal measures and not benefited by puncture of the ventricle and lumbar puncture.

89. **Localization of Motor Aphasia.**—Monakow concludes this long review of recent research on this subject and clinical experience with the statement that our present means of research are unable to determine the exact connection between the Broca localization, and the remainder of the cortex. There is evidently a comprehensive and complicated center for speech, or rather an area of excitation, both synchronous and successive excitation, of the foci aggregate.

91. See Berlin Letter, Oct. 2, 1909, p. 1112.

92. **Faradization of the Bladder in Treatment of Ataxia in Tabes.**—Herzog applied the induced current directly to the urethra by introducing an electrode about 1 cm. deep into the urethra, with a large electrode on the lumbar region of the spinal cord, passing the current for about three minutes. The measure was applied for cystitis with recurring pyelitis in a patient with tabetic ataxia. From the first sitting the patient noticed that not only the bladder trouble, but his gait was improved, and after twenty applications he was able to return to military service. The ataxia is now so slight that it does not attract lay attention. In 3 other cases similar faradization was equally successful in 2, and with satisfactory results in the other. There was no possibility of influence from suggestion in 2 of the cases. He ascribes the effect to the powerful stimulus from the periphery by way of the intact sensory tracts from the bladder, so he calls the method "faradization of the bladder." He cites Hamilton's recently published success from irrigation of the bladder in tabes, the effect of which is probably by the same mechanism as from the electric treatment.

Deutsche Zeitschrift für Chirurgie, Leipsic

September, CI, Nos. 1-2, pp. 1-204

96 *Operative Treatment in 30 Cases of Tuberculosis of the Kidney. (Zur Nierenchirurgie.) H. Doering.
97 *Separation of Both Upper Jaws from Base of Skull and Their Reduction. (Abbruch beider Oberkiefer von der Schädelbasis und ihre Reponierung.) Thöle.
98 Stomach Surgery. (Operationen am Magen.) K. Mizokuchi.
99 Pseudoperitonitis from Addison's Disease. (Pseudoperitonitis bedingt durch Morbus addisonii.) M. Landow.
100 *Mechanism of Anal Sphincter. (Experimentell-chirurgischer Beitrag zur Lehre vom Mechanismus der Analsphinkteren.) H. Matti.
101 Rupture of Biceps. (Zur Frage der Ruptur des Biceps brachii.) G. Ledderhose.
102 *Trephining for Fracture of Base of Skull. (Zur Frage der Trepanation bei Schädelbasisbrüchen.) H. Luxembourg.
103 Subcutaneous Prolapse of the Bowel. (Zur Lehre vom subkutanen Intestinalprolaps.) Esau.

96. **Tuberculosis of the Kidney.**—Doering reports the experiences at Braun's clinic at Göttingen with 30 cases of tuberculosis of the kidneys, all but 10 in women. In 19 cases the kidneys were the only site of the tuberculosis. Heredity seemed evident in 9 cases. Pain was the first sign of trouble in all but 2 cases, in which no pain was experienced at any time; fever was observed in the majority, but the kidney was enlarged in only 6 cases. In 25 cases an operation was performed, and 19 of the 20 patients who survived the operation have been recently examined; 4 succumbed to tuberculosis in other organs, but 16, 80 per cent., are in good health from one to eleven years since. He compares his primary mortality with that of others in a compilation of 642 cases. Only 4 of his patients with combined tuberculosis were permanently cured; besides the kidney process, one had a tuberculous bone lesion, the others an apical or cutaneous lesion. He summarizes the details of the entire series.

97. **Dislocation of the Entire Upper Jaw.**—In a horseback accident the upper jaw was separated from the base of the skull, but Thöle succeeded in restoring it to place by means of an appliance exerting pressure by a band passing around an upright rod at the back of the neck, worn for three weeks, and followed by a dental appliance. By the end of six weeks articulation was apparently normal once more.

100. **The Mechanism of the Anal Sphincters.**—Matti's attention was called to this subject by partial incontinence in 3 cases of destruction of some of the muscles, interrupting the continuity of the external sphincter, without disturbance in the innervation. The patients all complained of diarrhea; it was due solely to mechanical insufficiency, although ascribed erroneously to recurring intestinal catarrh and long treated as such in vain. The anus seemed to be intact. The partial defect was in the internal sphincter. Fifty pages are devoted to the description and discussion of his experimental research on the subject, all confirming the functional dependence between the internal and external sphincters and the importance of respecting the sphincters in operating on the rectum. The internal sphincter shares in the peristalsis, and its function in closing the orifice is dependent on mechanical stimulation from the external sphincter muscle.

102. **Trephining in Fracture of the Base of the Skull.**—Luxembourg reports the details of 5 cases in which trephining was done for symptoms of pressure on the brain after fracture of the base of the skull. Clots were found in each case between the dura and the skull, fully explaining the symptoms. The improvement at once or some time after was striking; consciousness returned, the headache subsided partially or entirely and the paralysis was much improved.

Fortschritte der Medizin, Leipsic

September 10, XXVII, No. 25, pp. 929-976

104 Treatment of Psoriasis. (Behandlung der Schuppenflechte.) Hübner.
105 Unilateral Movements of the Eyes. (Einseitige Augenbewegungen.) A. Bielschowsky. Commenced in No. 24.

Medizinische Klinik

September 19, V, No. 38, pp. 1411-1464

106 *Serodiagnosis from Clinical Standpoint. F. Kraus.
107 *Operative Treatment of Epilepsy. F. Krause.
108 Pyothorax and Pyopneumothorax. N. Ortner.
109 *Differentiation of Tricuspid Insufficiency. (Kann man klinisch die Trikuspidalinsuffizienz diagnostizieren?) H. E. Hering.
110 Prevention of Infection in Operating on the Eyeball. (Die Infektionsverhütung bei Bulbusoperationen.) A. Elschnig.
111 Tuberculous Chorioiditis. (Ueber chronische Aderhautentzündung auf tuberkulöser Grundlage.) St. Bernheimer.
112 *Report of 450 Goiter Operations. (Ueber Kropfoperationen.) H. Schloffer.
113 Secondary Cutaneous Scirrhus. (Ueber sekundären Szirrhus der Haut.) C. Kreibich.
114 *Determination of Acidity of Gastric Juice. (Zur Methodik der Aziditätsbestimmung im Magensafte.) A. Müller.
115 Sporotrichosis. B. Bloch.

106. **Serodiagnosis from Clinical Standpoint.**—Kraus remarks that serodiagnosis not only reveals the identity of the disease-germ, but is an index of the reacting powers of the organism. The defensive reactions are both cellular and humoral, and they are by no means restricted to infections, but have a much broader field. Only part of the antitoxins produced serves for the defense of the organism; a certain proportion evidently becomes the source of further disturbances. He adds that there are probably still other kinds of immunity of which we are ignorant, and it is also probable that cellular immunization plays a far more comprehensive part in clinical pathology than our experimental immunity research has yet revealed. He declares that there is not a single absolutely specific reaction; each biologic reaction is only relatively specific, dependent on the reacting organism, its reaction products and the quantity of antigen available or used for the reaction. He presents the subject classified under various headings and the problems it is opening up before us. In syphilis, for example, it is important to determine whether the Wassermann test is constantly positive in every case of unmistakable syphilis and every return after a quiescent period; whether mercurial treatment constantly transforms a positive into a negative

response; whether women apparently healthy but giving a positive response bear syphilitic children; whether persons giving a positive reaction are able to infect others, have relapses and develop tabes, paralysis or aortitis, and, finally, whether new primary infection is possible in persons giving a positive response. At the same time the investigator must bear in mind the analogy to other infectious diseases; the survival of the antibodies after recovery from the disease; the occurrence of positive reaction many years after the last manifestations; the fact that men giving a positive reaction are yet able to marry and rear healthy children and the wife remain healthy; fluctuations in the reaction; the possible development of paralysis notwithstanding apparently effectual mercurial treatment, and the occurrence of a positive response even in the stage of paralysis, although the latter cannot be cured by mercury. It is possible, he continues, that the Wassermann test may prove a guide for an individualizing biologic mercurial treatment and aid in the prognosis, as positive findings indicate that recovery is not complete. He regards it as established that progress will be realized by occasional repetition of the test and institution of renewed treatment in case of positive findings, hoping that in this way it may be possible to ward off paralysis and tabes. He has not found the cutaneous tuberculin reaction of much value for adults, but considers it extremely important for children. The tuberculin reactions depend on the force of the stimulus, the excitability and capacity for reacting of the cells—all of which are variable factors, and all should be borne in mind in estimating the response to the test. In conclusion, he remarks that the internists and the general practitioners pay altogether too little heed to the possibilities of serodiagnosis at present. There is grave danger that by leaving to special institutions the exercise of the different diagnostic and therapeutic measures, they may lose their own birthright, and that diseases, and not the diseased individuals, will get the treatment. There is also danger for the general practitioner striving to learn the technic of some special diagnostic method, such as the Wassermann test, and taking a special "lightning course" in the technic. While specializing in this single reaction he leaves out of account altogether the other achievements of immunity research, and thus gets a one-sided view of the subject.

107. **Operative Treatment of Epilepsy.**—Krause has operated in 12 cases of general epilepsy since 1906, and one of his patients, a man of 31, was so improved that he has been able to manage his large factory for three and a half years. Before the operation he had up to three seizures a day, but since they recur only every fourth or sixth week. Another patient, a man of 21, has had no seizures during the year and a half since the operation. No appreciable benefit was observed in the other cases. Cooperation between neurologists and surgeons will certainly lead to progress in the operative treatment of epilepsy, such as has already been realized in other operative affections of the spinal cord and brain.

109. **Differentiation of Tricuspid Insufficiency.**—Hering remarks that increased knowledge has robbed us of what was supposed to be a certain sign of tricuspid insufficiency, namely, the jugular-ventricle pulse (*Kammervenenpuls*). This is as much as to say that we have at present no means of diagnosing tricuspid insufficiency. At the same time, in a certain number of cases, we are in a position to exclude tricuspid insufficiency, notwithstanding the existence of the jugular-ventricle pulse. These are the cases in which the jugular pulse is so weak that it is scarcely recognized as such, but the pulse is of the permanently irregular type, there are no signs of stasis and there may be absolutely no heart murmur. These features of the case exclude tricuspid insufficiency. Only when the jugular-ventricle pulse is pronounced should it be suspected.

112. **Operations for Goiter.**—Schloffer has been able to learn the late results in 235 of 450 patients on whom he has operated for goiter during the last six years, and expects to hear from others. In 199 cases the patients report most gratifying results from the operative treatment, but in 28 the tumor has recurred, causing some disturbance, and in 32 without disturbances. Eight patients say the operation gave no relief. The operative mortality in the cases without suffocation was 1.6 per cent., but 5 of the 130 patients who had typical attacks of suffocation succumbed.

114. **Simplified Technic for Determination of the Gastric Acidity.**—Müller gives a colored chart to serve as the color scale for the test, the eight separate tints ranging from clear yellow, in the cases with total absence of acidity, through intermediate orange tints to a reddish violet in the cases with high acidity. He never found more than 1 per thousand acidity in his tests. The stain is a cold saturated alcoholic solution of the stain tropæolin-00, and 0.1 c.c. of the solution is added to 5 c.c. of gastric juice, when at once the mixture is ready for comparison with the color scale given on a fly-leaf for ready reference. He adds the tabulated details of 24 cases in which the findings with this simple test were compared with the more complicated usual tests, the agreement between them being almost complete. This test reveals the proportion of hydrogen ions present, and thus is a more exact index of the actual acidity than the titration methods. The tint is always the same, he says, for fluids containing the same number of these ions.

Monatsschrift für Geburtshülfe und Gynäkologie, Berlin

September, XXX, No. 3, pp. 261-416

116 *Appendicitis and Affections of the Adnexa. (Appendicitis und Erkrankungen der Adnexa uteri.) A. v. Rosthorn.
117 Rare Case of Double Uterus. (Uterus duplex bicornis.) H. Schiller.
118 Congenital Dislocation of the Humerus. (Luxatio humeri congenita.) H. Luft.
119 *The Levator Ani in Respect to Recurrence After Operations for Prolapse. (Bedeutung des Levatorspaltes für die Rezidivprognose der Prolapsoperation.) Adolph.

116. **Appendicitis and Affections of the Adnexa.**—This last communication from the pen of v. Rosthorn discusses the connection between disturbances in the appendix and adnexa and the differentiating points. He gives a number of ilustrative examples; and appeals for further study of: 1. The frequency of appendicitis in women. 2. The causal relation between affections of the appendix and of the female genitalia. 3. Differentiation. Disturbances in menstruation and painful menstruation should not always be referred to pathologic changes in the genital sphere, especially in virgins; pelvic symptoms and suppuration may be traceable to the appendix. 4. Adhesions connecting the appendix and the pathologic internal genital organs are comparatively rare. When they do occur pronounced symptoms may be absent, but they favor the spread of infectious processes from one to the other. 5. The development of appendicitis, chronic from the start, must be accepted. Efforts to define this vague clinical picture are in order to differentiate it from the numerous similar conditions from other causes. 6. The appendix should be examined whenever the abdomen is opened for any cause, but its prophylactic removal requires further research on the physiologic value of the appendix and of the disturbances from lack of its functioning; of the histologic changes to determine whether they are of pathologic nature or not; of the proportion of cases of appendicitis in persons who have been operated on for other pelvic affections; the proportion of permanent cures of the genital affections after appendicectomy and the causes of the numerous failures. 7. The slightest suspicion of appendicitis of course turns the scale in favor of the abdominal route for operating on the pelvic organs. The acceptance of the principle of always removing the appendix brings with it the constant choice of the abdominal route for all operations on the adnexa. 8. There are no sufficient data at present to form any judgment in regard to the frequency of acute appendicitis as a cause of abortion and of postappendicitic changes as a cause of habitual abortion, and the importance of appendicitis as a factor in sterility.

112. **Operations for Goiter.**—Schloffer has been able to learn

Ani Muscles.—Adolph has been able to examine recently 152 women of the 186 operated on for prolapse between 1904 and 1907, seeking to determine the influence of the gap between the levator ani muscles as a factor in the prolapse. Childbirth stretches these muscles so far apart that the solidity of the floor of the pelvis is much impaired, and his research has shown that this insufficiency of the genital hiatus is frequently overlooked or neglected. It is sometimes impossible to remedy

it, and he asks whether tubal sterilization ought not to be proposed for women with total insufficiency corrected by an operation but sure to return under the stress of another delivery. In his experience the cleft was found nearly normal in 66 cases, moderately enlarged in 23, and extremely enlarged in all the others. Classification of the prolapses shows that the size and severity parallel the width of the cleft of the levator ani muscles, and the end results of the operation for the prolapse show this parallel course still more pronounced. The size of the uterus is also important, as total prolapse more readily occurs with a small hiatus when the uterus is small. Sometimes large prolapse of the vagina with a much enlarged cervix simulates total prolapse, but in reality this is not the case unless the uterus is small. When it is large it does not descend so readily, but when the hiatus is very wide the size of the uterus is not of much moment for the amount of prolapse. It is therefore evident that by determining the width of the gap between the levator ani muscles it is possible to foretell the outcome of an operation for prolapse. Even hysterectomy does not ensure against recurrence of the prolapse if the hiatus is left unduly gaping. If it cannot be closed, the aim should be to hold up the uterus in some way and to strengthen the levator muscles by exercise. The recent anatomic research in this line explains the success realized by T. Brandt in the cure of prolapse by his gymnastic exercises, which was at first regarded so skeptically. All this applies especially to primiparæ, as the conditions preparing the way for prolapse are created almost invariably at the first child-birth. Forcible delivery is especially liable to enlarge this hiatus and thus deprive the genital organs of the necessary support from the juxtaposition of the levator ani muscles. In about half of the cases of the widest hiatus the child had been delivered with forceps. In 80 per cent. of his cases the women had remained in bed until the eighth day after delivery.

Münchener medizinische Wochenschrift

September 21, LVI, No. 38, pp. 1929-1984

120 *Hereditary Transmission of Syphilis. (Vererbung der Syphilis auf Grund serologischer und bakteriologischer Untersuchungen.) L. Baisch.
121 Cholera a Nitrous-Acid Intoxication. (Der Nachweis des Choleragiftes.) R. Emmerich.
122 Electrocardiograms of the Auricles with Mitral Stenosis. (Ueber die Vorhoferhebung des Elektrokardiogramms bei Mitralstenose.) A Samoiloff and M. Steshinsky.
123 *Febrile Reaction to Salt in Infants and Elimination of Chlorin. (Das sogenannte Salzfieber und die Chlorausscheidung beim Säuglinge.) R. Friberger.
124 Miliary Tuberculosis in the Puerperium. (Miliartuberculose im Wochenbett.) Rose.
125 The Trachoma Corpuscles. (Ueber die von Prowazek bei Trachom gefundenen Körperchen und ihren diagnostischen Wert.) W. Grüter.
126 Determination of Coagulating Time of Blood. (Neue Methode zur Bestimmung der Gerinnungszeit des Blutes.) W. Riebes.

120. **Inheritance of Syphilis.**—Baisch reports from Döderlein's clinic for women at Munich the results of his research seeking to define the serologic and bacteriologic laws governing the transmission of syphilis to the offspring. In about 80 per cent. of the cases of maceration of the fetus, syphilis must be incriminated, but in the remainder nephritis in the mother or possibly tuberculosis, malformation of the fetus or entanglement in the umbilical cord is responsible for the premature death of the fetus. Typical habitual abortion in the first four months of pregnancy does not belong to the symptomatology of syphilis. The mothers of syphilitic children are probably all infected with syphilis, but fully 75 per cent. of such mothers in his experience presented no certain signs of syphilis and the Wassermann test is frequently negative. Colle's and Profeta's laws are explained by the fact that new infection is impossible, as infection is already installed. The best prospects for therapeutic success are in energetic treatment of the mothers before and during the pregnancy.

123. **Fever After Injection of Salt in Infants.**—Friberger reports experiences with 74 infants, averaging three months old, injected subcutaneously with 10, 30 or 60 c.c. of physiologic salt solution. A rise of temperature was observed in only 28, and although the curve was typical, yet there did not seem to be any regularity in the febrile response. As a rule, the response was most regular in the infants with intestinal disturbances.

Virchows Archiv, Berlin

September, CXCVII, No. 3, pp. 385-566

127 Complications and Spread of Pulmonary Tuberculosis. (Studien über Komplicationen der Lungentuberkulose und über die Verbreitung der Tuberkelbazillen in den Organen und im Blut der Phthisiker.) G. Liebermeister.
128 Nodules Resembling Tubercles, Caused by Eggs of *Schistosomum japonicum*. (Ueber tuberkelähnliche Knötchenbildung verursacht durch Eier von Schistosomum japonicum.) T. Tsunoda.
129 Influence on the Heart Musculature of Disturbances in the Coronary Arteries. (Einfluss der Erkrankungen der Koronararterien auf die Herzmuskulatur mit besonderer Berücksichtigung der chronischen Aortitis.) E. v. Redwitz.
130 Mixed Tumors of Parotid Region and Endotheliomas. (Zur Kenntnis der sog. Mischgeschwülste der Parotisgegend und Zur Endotheliomfrage.) J. Fick.
131 Total Obliteration of the Portal Vein Trunk. (Ueber totale Hämangiomatöse Obliteration des Pfortaderstammes und über hepatopetale Kollateralbahnen.) L. Pick.
132 Retrogression of Sebaceous Glands. (Ueber Rückbildung an Talgdrüsen.) J. Misumi.
133 Elements of Diseased Kidney Taking Blue Stain. Ueber durch die Weigertsche Fibrinfärbungsmethode blaufärbbare Anteile der kranken Niere.) V. Babes.
134 *Origin of Appendicitis. (Ueber die Aetiologie und Pathogenese der Epityphlitis mit besonderer Berücksichtigung der hämatogenen Infektion.) Y. Oguro.

134. **Origin of Appendicitis.**—Oguro was unable to discover anything suggesting the probability of blood-borne infection in the 20 cases of appendicitis of which the minute details are reported. On the other hand, the findings all confirm the importance of stagnation in the bowel content as the chief factor in appendicitis.

Wiener klinische Wochenschrift, Vienna

September 23, XXII, No. 38, pp. 1289-1322

135 Treatment of Progressive General Paralysis with Injection of Nuclein. J. Donath.
136 *Hemolytic Reaction in Blood with Cancer. (Weitere Untersuchungen über hämolytische Reaktionen und über Komplementbindung im Blute von Krebskranken.) G. Kelling.
137 Signs of Insufficiency of the Muscles in Congenital Dislocation of the Hip Joint. (Ueber das Trendelenburgsche Phänomen bei der angeborenen Hüftverrenkung.) A. Saxl.
138 Femoral Hernia (Radikal-Operationen von Schenkelhernien.) J. Fabricius.
139 *Diseases of the Esophagus. (Erkrankungen der Speiseröhre.) R. Kaufmann and R. Kienböck. Commenced in No. 36.

136. **Hemolytic Reaction in the Serum with Cancer.**—Kelling's statements in regard to the specific reaction in the serum of patients with cancer have been summarized in THE JOURNAL. He here tabulates the findings in a series of 100 patients tested for the hemolytic reaction to both human and fowl blood corpuscles. Also in a series of 50 tested with less concentrated suspensions. The results confirm the differential importance of the isolysin tests for the diagnosis of cancer. His experience includes also a series of 600 cases in which the test was applied similarly to the first series of 600 reported in 1907 and with similar findings. In conclusion he tabulates the parallel findings with the hemolytic and the complement-binding tests in 200 cases. No reaction was apparent in 96 cases of ulcer, neurosis, gastritis, gall-stones, gastrointestinal catarrh or anemia, while one or the other or both were positive in all but 4 of the 78 cases of carcinoma, all but 2 in the digestive tract.

139. **Affections of the Esophagus.**—In this communication from Kienböck's radiologic institute at Vienna, 13 cases of an affection of the esophagus are reported with the autopsy findings in some and the lessons learned therefrom. In some cases a primary diverticulum induced secondarily spastic closure of the cardia. In others a large diverticulum existed but the periodical recurrence of the disturbances in swallowing showed that the diverticulum was not directly responsible for them. It is evident that the decomposition of the food lodged in the diverticulum irritated the mucosa and thus was the indirect cause of closure of the cardia. In some cases of idiopathic dilatation of the esophagus the rinsing out of the esophagus did not banish all the disturbances, especially the spasm, until it was supplemented by administration of atropin. When the rinsing out the esophagus cures in such cases, the vagus is manifestly not responsible for the disturbances; a local pathologic condition of the mucosa of the esophagus is inducing the spasm. On the other hand, when there are signs of a neuritis or neurosis of the vagus, or compression or atrophy of this nerve, this alone suffices to explain the spasm, contraction or paralysis interfering with the act of swallowing, and atropin will benefit and possibly cure.

Zentralblatt für Chirurgie, Leipsic

September 25, XXXVI, No. 39, pp. 1345-1376

140 *Femoral Hernia. (Zur Radikaloperation des Schenkelbruches.) H. Hans.
141 Technic for Gastroenterostomy. R. Lenzmann.
142 *Resection of Middle Duodenum. W. Kausch.

140. **Radical Operation of Large Femoral Hernia.**—Hans gives an illustrated description of a method of wire fixation which has proved extremely useful for very large femoral hernias. Poupart's ligament is changed from a flat to a vertical plane and Gimbernat's ligament is strengthened and spread by two stout silver wires, forming a triangle, which embraces the bone and forms a solid support, the ends being sunk in the bone. This technic has the advantages of the Roux method of nailing the ligament to the pubis with a silver double pointed nail, while it does not have the drawback of this, namely, that the nail works loose in time.

142. **Resection of Middle Duodenum.**—Kausch has been much pleased with the results of operating on the duodenum in two sittings, as in a case of cancer of the papilla reported. The first step is merely an anterior cholecystotomy with entero-anastomosis; this relieves the patient and frees him from jaundice. Two months later the radical operation follows, mobilization of the duodenum, posterior gastroenterostomy and resection of the duodenum, first closing the pylorus, then ligating the common bile duct, then cutting the pancreas, including its duct, but without ligation of the latter, then severing the duodenum. The oral stump of the duodenum is then drawn over the cut surface of the pancreas like a cap and sutured there. The ligated end of the bile duct is also drawn into the lumen. By this means the pancreas secretion and discharge from the cut surface all flow into the intestine, and the method permits extensive resection of duodenum, pancreas and bile duct. In the case reported, the patient stood the four-hour operation well and made a smooth recovery, although stomach content, bile and pancreatic juice escaped from the drain for about seventeen days.

Zentralblatt für Gynäkologie, Leipsic

September 25, XXXIII, No. 39, pp. 1353-1384

143 Protecting Action of Normal Serum Against Effect of Human Placenta Juice in Rabbits. (Schutzeffekte normaler Sera gegen die Wirkung menschlichen Placentasaftes beim Kaninchen.) F. Schenk.
144 Snare for Intrauterine Exploratory Excision. (Zur intrauterinen Probeexzision.) V. Frommer.
145 Gauge for Internal Measurement of the Pelvis. (Ein technischer Versuch zur inneren Beckenmessung.) O. Orth.

Gazzetta degli Ospedali, Milan

September 21, XXX, No. 113, pp. 1193-1200

146 *Suprarenal Treatment of Uncontrollable Vomiting of Pregnancy. (Iperemesis gravidarum e terapia adrenalinica.) S. Rebaudi.

September 23, No. 114, pp. 1201-1208

147 Bile Enrichment of Typhoid Bacilli from the Blood. (Sulla coltivazione del bacilio del tifo dal sangue per mezzo dell' arricchimento in bile.) A. Ori.

September 26, No. 115, pp. 1209-1224

148 Displacement of Apex Beat with Mitral Defect. (Impulso da cardiaco invertito in un caso di doppio vizio mitralico.) U. Deganello.

146. **Vomiting of Pregnancy and Suprarenal Treatment.**—Rebaudi writes from Bossi's clinic at Genoa to call attention to the remarkable effect of a few cubic centimeters of a solution of the juice from the capsule of the suprarenals in promptly arresting previously uncontrollable vomiting. The patient was a young woman at the third month of her second pregnancy dangerously debilitated from the almost incessant vomiting. All other treatment was suspended except the nutrient enemas, and 10 drops of 1 to 1,000 adrenalin solution were given morning and night, at first in an enema of 150 gm. water with 20 drops of laudanum, after three days in ice water by the mouth. The vomiting ceased by the second day and by the third the patient was able to retain a little food. On the eleventh day the dose was reduced to 10 drops a day, and this was kept up for nine more days. Toward the end of the pregnancy there was a recurrence of tendency to nausea and 10 drops of the adrenalin solution were given for five days, during which the tendency subsided and a well-developed child was delivered at term and is now growing normally.

Policlinico, Rome

September 26, XVI, No. 39, pp. 1221-1252

149 *Tuberculin Treatment of Pulmonary Tuberculosis. (Tubercolino-terapia.) G. Basile.
150 *Acute Poliomyelitis and Measles. (Poliomielite acuta anteriore e morbillo.) V. Barbieri.

149. **Tuberculin Treatment of Pulmonary Tuberculosis.**—Basile was obliged to discontinue the tuberculin treatment in the three cases reported, as it seemed to be doing harm instead of good, after a thorough trial according to the most approved technic.

150. **Poliomyelitis Following Measles.**—Barbieri's patient was a boy of 7, who ten days after recovery from an apparently ordinary attack of measles developed signs of atrophic infantile paralysis or acute anterior poliomyelitis. All the limbs were simultaneously affected, and the paralysis reached its height by the end of a few months. It has persisted practically unmodified during the two years since. No cause can be assigned except the preceding measles.

Riforma Medica, Naples

September 27, XXV, No. 39, pp. 1065-1092

151 *Malta Fever. (Febbri e febbricole setticemiche da micrococco di Bruce. VIII.) G. Rummo.
152 *Reaction to Differentiate Exudation from Transudate. (Nuova reazione per differenziare gli essudati dai transudati.) S. Gangi.

151. **Malta Fever.**—Rummo describes the characteristics of this disease, mentioning that the incubation may vary from three to fifteen days or more, while the disease may last for a few weeks to several months or even years, though early complete recovery is the rule. There is no special type of fever, and the disease can be differentiated from paratyphoid or an atypical typhoid, he asserts, only by the seroreaction. The micrococcus has been found in the blood in 80 per cent. of the cases.

152. **Differentiation Between Exudates and Transudates.**—Gangi describes a test which he has found simple and reliable for this purpose. It is based on Heller's test for albumin in the urine: In a test tube containing 2 or 3 c.c. of hydrochloric acid, 3 or 4 c.c. of the fluid to be examined is allowed to flow down the side. In the presence of an exudate a white cloud appears and forms a ring at the zone of contact between the two liquids. From the upper surface of this ring white clouds gather and rise, similar to the puff of smoke that rises when a lighted cigarette is struck lightly. These clouds gather to form a zone at first at the surface but then gradually sinking somewhat below the surface of the fluid in the test-tube, with a zone of limpid fluid above and below them down to the white ring. The ring gradually increases in width and density and finally clings to the walls of the test-tube and bubbles of gas are observed. With a transudate, on the other hand, the ring at the zone of contact is small and narrow and the fluid above persists limpid throughout, or there may be no ring; after a period of turbidity the fluid mixes with the acid below and forms a homogeneous turbid brownish fluid. He discusses the mechanism of this reaction, suggesting that the presence of proteids does not explain it entirely and that certain products of bacterial metabolism may also be involved.

Books Received

All books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. A selection will be made for review in the interests of our readers and as space permits.

MEDICAL COMMUNICATIONS OF THE MASSACHUSETTS MEDICAL SOCIETY. Vol. XXI, No. 11, 1909. Paper. Pp. 66.

THE MEDICAL DIRECTORY OF NEW YORK, NEW JERSEY AND CONNECTICUT. Volume XI. Cloth. Pp. 855. Price, $2.50. Published by The Medical Society of the State of New York, 1909.

STUDIES IN IMMUNITY. By Prof. Jules Bordet, Professor of Bacteriology at the University of Brussels, and his Collaborators. Collected and Translated by Frederick P. Gay, A.B., M.D., Instructor in Pathology, Harvard Medical School. First Edition. Cloth. Pp. 529. Price, $6. New York: John Wiley & Sons, 1909.

RADIATION, LIGHT AND ILLUMINATION. A Series of Engineering Lectures Delivered at Union College. By Charles Proteus Steinmetz, A.M., Ph.D. Compiled and Edited by Joseph LeRoy Hayden. Cloth. Pp. 288, with illustrations. Price, $3. New York: McGraw-Hill Book Co., 1909.